

VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Major, Industrial permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260. The discharge results from the operation of a wastewater treatment plant serving a facility that produces carpet for commercial application (SIC Codes: 2273 – Carpets and Rugs & 2269 – Finishers of Textiles). This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address:
Mohawk Industries, Inc.
404 Anderson Street
Glasgow, VA 24555
Location: 404 Anderson Street, Glasgow
2. Permit No. VA0004677; Expiration Date: February 28, 2015
3. Owner: Mohawk Industries, Inc.
Contact Name: Jennifer Snider
Title: Wastewater Treatment Operator in Charge
Telephone No: (540) 258-7282
Email: jennifer_snider@mohawkind.com

4. Application Complete Date: September 5, 2014

Permit Writer: Dawn Jeffries

Date: November 24, 2014

Reviewed By: Bev Carver

Date: November 25, 2014

Public Comment Period: January 21, 2015 to February 20, 2015

5. Receiving Stream Name: Maury River
River Mile: 1.5
Use Impairment: Yes
Special Standards: pH
Tidal Waters: No
Watershed Name: VAV – I37R Lower Maury River /Poague Run
Basin: James (Upper); Subbasin: NA
Section: 12; Class: IV
6. Operator License Requirements per 9VAC25-31-200.C: Class II
7. Reliability Class per 9VAC25-790: Class II (for the STP at the site, VDH concurrence received 12/16/09)
8. Permit Characterization:
☒ Private ☐ Federal ☐ State ☐ POTW ☐ PVOTW
☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

9. Description of Wastewaters and Treatment Facilities:

Appendix A

Total Number of Outfalls = 8 external outfalls – 5 outfalls discharge only stormwater not exposed to industrial activity and have no monitoring requirements (003, 005, 006, 008, and 009). Outfalls 002 & 007 discharge stormwater exposed to industrial activity and has associated requirements. Outfall 001 discharges treated wastewater and has associated requirements.

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10. Discharge Location Description and Receiving Waters Information: Appendix B

11. Antidegradation (AD) Review & Comments per 9VAC25-260-30:
Tier Designation: Tier 2

The State Water Control Board's WQS include an AD policy. All state surface waters are provided one of three levels of AD protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 waters have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 waters are exceptional waters and are so designated by regulatory amendment. The AD policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. At the previous reissuance, the Maury River in the vicinity of the discharge was listed as Tier 1 due to benthic impairment. The river was delisted for benthic impairment on November 7, 2008. The Maury River is still listed as impaired for PCBs and bacteria; however, these impairments are not used as the basis for a Tier determination. There are no other data available that indicate water quality criteria (WQC) either have been violated or are barely met; therefore, the Maury River in the vicinity of the discharge is determined to be a Tier 2 water. Since the quality of Tier 2 waters is better than that required by the standards, no significant degradation of the existing quality will be allowed.

The DO AD baseline previously established as 6.12 mg/L has been carried forward from the previous permit. In accordance with agency guidance, Ammonia-N was evaluated against antidegradation WLAs as was done in previously reissuances. Antidegradation baselines for the remaining toxic parameters have not been established because this facility's permitted design capacity has not expanded since the WQS were first adopted for those parameters. If this permit action had included an expansion of the design capacity for this facility, then baselines would have been calculated for all parameters as not more than 25% of the unused assimilative capacity of the criteria for the protection of aquatic life (acute and chronic) and not more than 10% for the protection of human health. The unused assimilative capacity is defined as the difference between existing water quality and the criterion for a specific pollutant.

12. Site Inspection: Performed by Dawn Jeffries on October 24, 2014 and January 5, 2015

13. NPDES Permit Rating Worksheet: Appendix A
The worksheet updated using current information regarding the facility.
☒ Major ☐ Minor Score = 105

14. Effluent Screening and Effluent Limitations: Appendix C

15. Effluent toxicity testing requirements included per 9VAC25-31-220.D: ☒ Yes ☐ No Appendix C

16. Sludge utilization and disposal: Sewage sludge from the STP is transported to the Town of Glasgow WWTP for additional treatment, blending, and final disposal. Industrial solids are transported to the Maplewood Recycling and Waste Disposal Facility for disposal.

17. Bases for Special Conditions: Appendix D

18. Material Storage per 9VAC25-31-280.B.2: This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

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19. Antibacksliding Review per 9VAC25-31-220.L: This permit complies with the antibacksliding provisions of the VPDES Permit Regulation.
20. Impaired Use Status Evaluation per 9VAC25-31-220.D: The Maury River in the vicinity of the discharge is listed as impaired for bacteria and for fish consumption due to PCB contamination. The facility was included in the Maury River Bacteria TMDL which includes the following waste load allocation (WLA) for this discharge:
- E. coli: 3.55×10^{12} cfu/yr (based on a design flow of 2 MGD and a concentration of 126 cfu/100 mL)
21. Regulation of Users per 9VAC25-31-280.B.9: N/A – There are no industrial users associated with this facility other than the owner.
22. Stormwater Management per 9VAC25-31-120: Application Required? ☒ Yes ☐ No
Stormwater management requirements for Sector V (Textile Mills) have been included in this permit.
23. Compliance Schedule per 9VAC25-31-250: There are no compliance schedules included in the reissued permit.
24. Variances/Alternative Limits or Conditions per 9VAC25-31-280.B, 100.H, and 100.M: None.
25. Financial Assurance Applicability per 9VAC25-650-10: N/A – This facility does not serve private residences.
26. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☒ No
27. Nutrient Trading Regulation per 9VAC25-820: See Appendix B
General Permit Required: ☒ Yes ☐ No
28. Nutrient monitoring included per Guidance Memo No. 14-2011: ☒ Yes ☐ No
This facility is a Significant Discharger as defined in the Nutrient Trading Watershed General Permit (WGP) Regulation 9 VAC 25-820 and is actively monitoring and reporting under the WGP. This permit does include an outfall that discharges stormwater exposed to industrial activity and monitoring has been required.
29. Threatened and Endangered (T&E) Species Screening per 9VAC25-260-20 B.8: Because this is not an issuance or reissuance that allows increased discharge flows, T&E screening is not automatically required. However, in accordance with the VPDES Memorandum of Understanding, T&E screening was coordinated on September 10, 2014 through USFWS, DCR and DGIF based upon request. Comments were received from USFWS on September 18 2014, from DCR on October 6, 2014. and from DGIF October 9, 2014, and are included in the permit processing file. Comments were considered in the drafting of the permit and were also forwarded to the permittee.

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30. Public Notice Information per 9VAC25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Dawn Jeffries at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7898, dawn.jeffries@deq.virginia.gov.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

31. Historical Record: The CTO for the STP at this facility was issued in 1980. It is not clear from documents available in this office when the discharge of industrial wastewater at this site began, or at what design flow the industrial plant was built. Previous fact sheets do indicate a diffuser being installed in 1992 and dilution factors then being determined for effluent flows of 1.1 MGD and 2.0 MGD.

APPENDIX A

DESCRIPTION OF WASTEWATERS AND TREATMENT FACILITIES

Outfall 001: The industrial WWTP treats process wastewater resulting from commercial carpet production of both broadloom and carpet tiles. Also included is treated domestic wastewater from internal Outfall 104, non-contact cooling water, and condensate. The design flow for the treatment works is 2.0 MGD.

Outfall 101 (Internal): Based upon current activities at the facility, this outfall discharges only noncontact cooling water and no longer includes wastewaters that previously were permitted as low volume wastewaters based on 40 CFR 423; therefore, monitoring at this internal outfall has been removed at this reissuance.

Outfall 104 (Internal): The treatment works treating domestic sewage is an aerobic activated sludge system with disinfection. The design average flow is 0.0384 MGD and the effluent is monitored and limited prior to discharging into the equalization basin.

Outfall 002: An intermittent stream enters the property at the western property boundary and is transported through an underground conveyance to Outfall 002. Also, stormwater associated with industrial activity is discharged. No treatment.

Outfall 003: Stormwater not associated with industrial activity. No treatment.

Outfall 005: Stormwater not associated with industrial activity. No treatment.

Outfall 006: Stormwater not associated with industrial activity. No treatment.

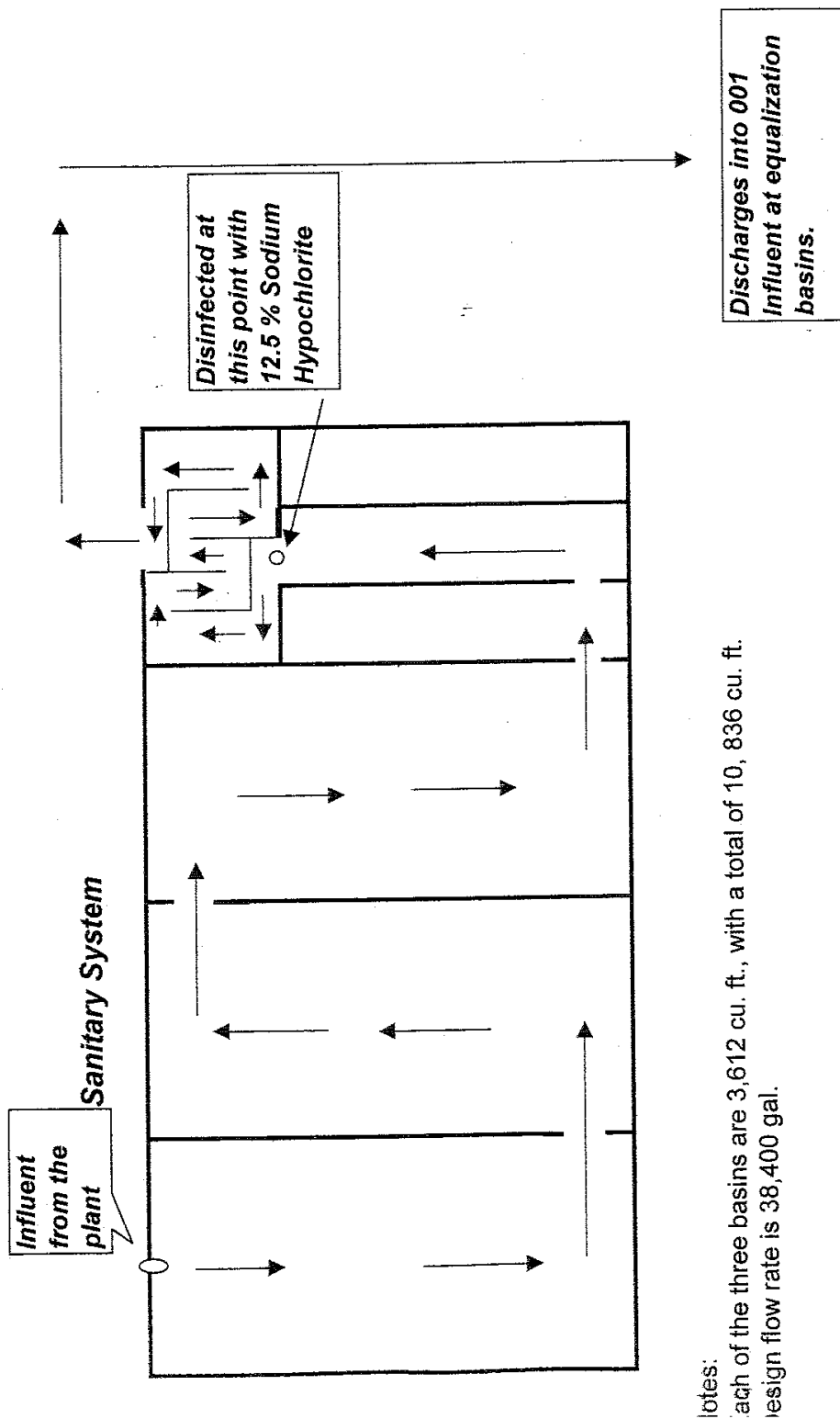
Outfall 007: Flows at this outfall are offsite stormwater runoff that enters the property at the western property boundary and is transported through an underground conveyance to Outfall 007, overflow from the water tank, and stormwater associated with industrial activity. Also in this area is what remains of a coal pile. Although coal is no longer used at the facility, there is some coal still on the ground that has not been removed.

Outfall 008: Stormwater not associated with industrial activity. No treatment.

Outfall 009: Stormwater not associated with industrial activity. No treatment.

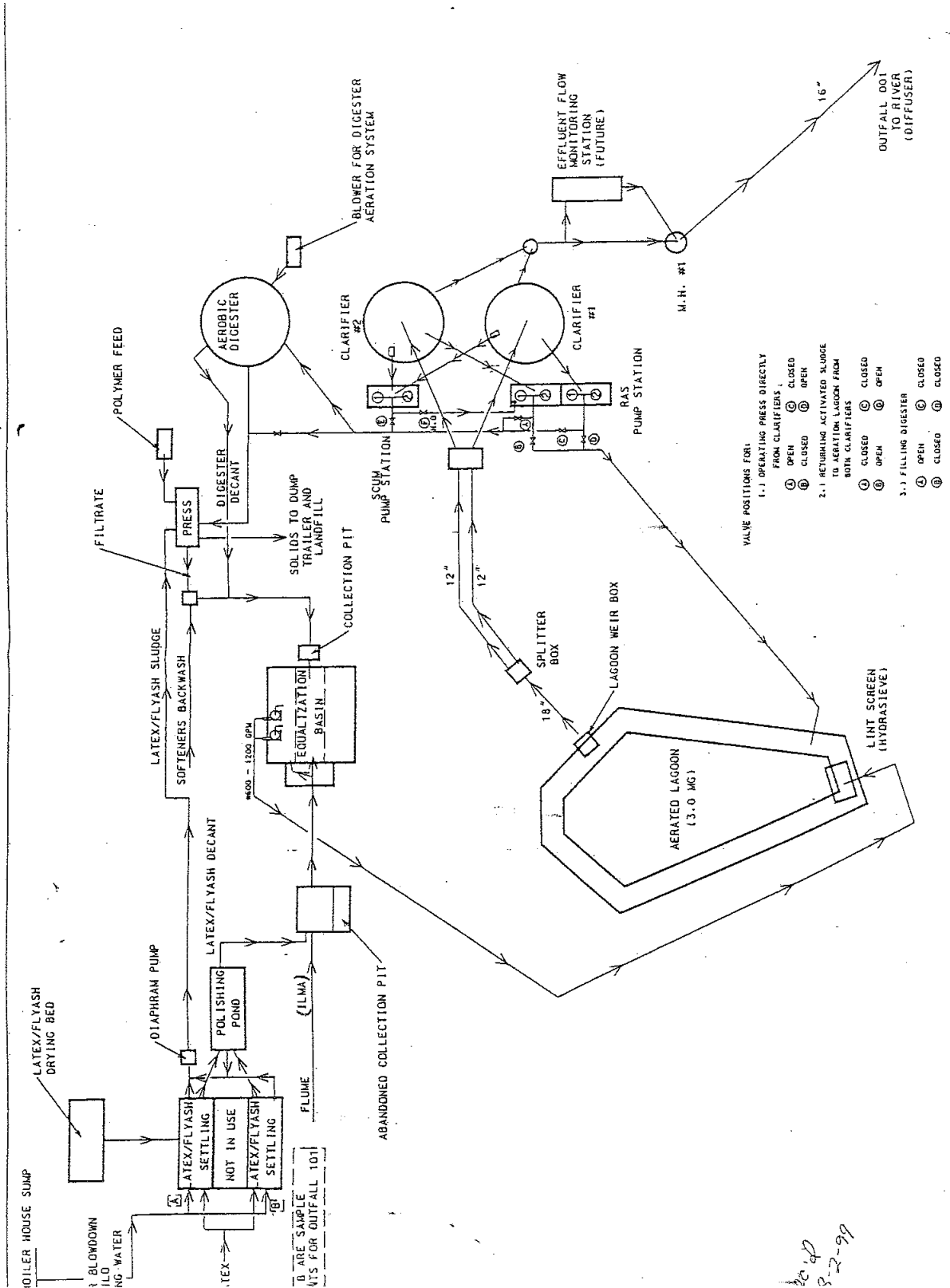
Flow Schematic – Sewage Treatment Plant for Domestic Waste, Outfall 104

Lees Carpets Sanitary Waste System Diagram



Flow Schematic – Industrial WWTP, Outfall 001

LEES CARPET - DIVISION OF MOHAWK INDUSTRIES
INDUSTRIAL WWTP



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VPDES Permit Rating Work Sheet

Facilities identified under SIC Codes 2273 & 2269 have the following characteristics as defined in Appendix A to the NPDES Permit Rating Work Sheet found in the VPDES Permit Manual.

1987 SIC Code	1987 SIC Code Title	40 CFR 410 Sub- Part	Sub-part Title	Human Health Toxicity Number	Total Toxicity Number	Industrial Sub- category Number
2273	WOVEN CARPETS AND RUGS	C	LOW WATER USE PROCESSING	2	9	2
2273	TUFTED CARPETS AND RUGS	C	LOW WATER USE PROCESSING	2	9	1
2273	CARPETS AND RUGS, NEC	C	LOW WATER USE PROCESSING	2	9	2
2269	FINISHERS OF TEXTILES, NEC	G	STOCK AND YARN FINISHING	7	9	2
2273	WOVEN CARPETS AND RUGS	F	CARPET FINISHING	1	8	1
2273	TUFTED CARPETS AND RUGS	F	CARPET FINISHING	1	8	2
2273	CARPETS AND RUGS, NEC	F	CARPET FINISHING	1	8	1

Factor 1 – Toxic Pollutant Potential

The facility has activities that fall under 40 CFR 410, Textile Mills Point Source Category. Subpart C – Low Water Use Processing Subcategory, Subpart F – Carpet Finishing, and Subpart G – Stock and Yarn finishing Subcategory apply. The highest Total Toxicity Number is used. This is unchanged from the previous rating.

Factor 2 – Flow/Stream Flow Volume

Section B, Type II is selected because the discharge contains process wastewater and the discharge is greater than 1 MGD. The evaluation considers all type II outfalls at design flow (001 = 2 MGD) and 7Q10 = 51.6 MGD. The IWC is 3.7%. Type II wastewaters with IWC <10% correspond to code 51, resulting in 0 points for this factor. This is unchanged from the previous rating.

Factor 3 – Conventional Pollutants

The permit contains limits for oxygen demanding pollutants and total suspended solids. The limit for COD is 1,700 kg/d or approximately 3,663 lb/d. The limit for TSS is 340 kg/d, or approximately 739 lb/d. This is changed from the previous rating.

Factor 4 – Public Health Impact

Using a worst case evaluation, it is assumed that there is a public drinking water supply within 50 miles downstream of the facility. This facility has activities that fall under 40 CFR C, F & G. The highest Human Health Toxicity Number is used resulting in a human health toxicity group of 7, corresponding to code 7, resulting in 15 points for this factor. This is unchanged from the previous rating.

Factor 5 – Water Quality Factors

20 points are scored for this factor. This is unchanged from the previous rating.

Factor 5.A. – The facility is subject to water quality based effluent limits for pH and toxicity.

Factor 5.B. – The receiving water is in compliance with applicable WQS for pollutants that are water quality limited in the permit.

Factor 5.C. – The permit includes a WET limit and exhibits reasonable potential to violate WQS for toxicity.

Factor 6 – Proximity to Near Coastal Waters

Code #4 – This discharge occurs in a non-coastal county. This is unchanged from the previous rating.

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NPDES PERMIT RATING WORK SHEET

NPDES NO. VA0004677

Facility Name: Mohawk Industries, Inc.

City: Glasgow, VA

Receiving Water: Maury River

Reach Number: _____

- ☐ Regular Addition
☐ Discretionary Addition
☒ Score change, but no status change
☐ Deletion

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (stop here) ☒ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

- ☐ YES; score is 700 (stop here)
☒ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: _____ Primary SIC Code: 2273 Other SIC Codes: 2269
 Industrial Subcategory Code: 003 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
[] No process waste streams			[] 3.	3	15	[] 7.	7	35
[] 1.	1	5	[] 4.	4	20	[] 8.	8	40
[] 2.	2	10	[] 5.	5	25	[X] 9.	9	45
			[] 6.	6	30	[] 10.	10	50

Code Number Checked : 9

Total Points Factor 1: 45

FACTOR 2: Flow/Stream Flow Volume (Complete either Section A or Section B; check only one)

Section A ☐ Wastewater Flow Only Considered

Wastewater Type (See Instructions)	Code	Points
Type I: Flow < 5 MGD	<input type="checkbox"/> 11	0
Flow 5 to 10 MGD	<input type="checkbox"/> 12	10
Flow > 10 to 50 MGD	<input type="checkbox"/> 13	20
Flow > 50 MGD	<input type="checkbox"/> 14	30
Type II: Flow < 1 MGD	<input type="checkbox"/> 21	10
Flow 1 to 5 MGD	<input type="checkbox"/> 22	20
Flow > 5 to 10 MGD	<input type="checkbox"/> 23	30
Flow > 10 MGD	<input type="checkbox"/> 24	50
Type III: Flow < 1 MGD	<input type="checkbox"/> 31	0
Flow 1 to 5 MGD	<input type="checkbox"/> 32	10
Flow > 5 to 10 MGD	<input type="checkbox"/> 33	20
Flow > 10 MGD	<input type="checkbox"/> 34	30

Section B ☒ Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow	Code	Points
Type I/III:	< 10 %	<input type="checkbox"/> 41	0
	10 % to < 50 %	<input type="checkbox"/> 42	10
	> 50 %	<input type="checkbox"/> 43	20
Type II:	< 10 %	<input checked="" type="checkbox"/> 51	0
	10 % to < 50 %	<input type="checkbox"/> 52	20
	> 50 %	<input type="checkbox"/> 53	30

Code Checked from Section A or B: 51

Total Points Factor 2: 0

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FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutant: (check one) ☒ BOD ☒ COD ☐ Other: _____

Permit Limits: (check one)			Code	Points
<input type="checkbox"/>	< 100 lbs/day		1	0
<input type="checkbox"/>	100 to 1000 lbs/day		2	5
<input type="checkbox"/>	> 1000 to 3000 lbs/day		3	15
<input checked="" type="checkbox"/>	> 3000 lbs/day		4	20

Code Checked: 4

Points Scored: 20

B. Total Suspended Solids (TSS)

Permit Limits: (check one)			Code	Points
<input type="checkbox"/>	< 100 lbs/day		1	0
<input checked="" type="checkbox"/>	100 to 1000 lbs/day		2	5
<input type="checkbox"/>	> 1000 to 5000 lbs/day		3	15
<input type="checkbox"/>	> 5000 lbs/day		4	20

Code Checked: 2

Points Scored: 5

C. Nitrogen Pollutant: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)		Nitrogen Equivalent	Code	Points
<input type="checkbox"/>	< 300 lbs/day		1	0
<input type="checkbox"/>	300 to 1000 lbs/day		2	5
<input type="checkbox"/>	> 1000 to 3000 lbs/day		3	15
<input type="checkbox"/>	> 3000 lbs/day		4	20

Code Checked: NA

Points Scored: NA

Total Points Factor 3: 25

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

☒ YES (If yes, check toxicity potential number below)

☐ NO (If no, go to Factor 5)

Determine the *human health* toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column ☐ check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	0	<input checked="" type="checkbox"/> 7.	7	15
<input type="checkbox"/> 1.	1	0	<input type="checkbox"/> 4.	4	0	<input type="checkbox"/> 8.	8	20
<input type="checkbox"/> 2.	2	0	<input type="checkbox"/> 5.	5	5	<input type="checkbox"/> 9.	9	25
			<input type="checkbox"/> 6.	6	10	<input type="checkbox"/> 10.	10	30

Code Number Checked: 7

Total Points Factor 4: 15

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FACTOR 5: Water Quality Factors

- A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge:*

<input checked="" type="checkbox"/>	Yes	Code 1	Points 10
<input type="checkbox"/>	No	2	0

- B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

<input checked="" type="checkbox"/>	Yes	Code 1	Points 0
<input type="checkbox"/>	No	2	5

- C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

<input checked="" type="checkbox"/>	Yes	Code 1	Points 10
<input type="checkbox"/>	No	2	0

Code Number Checked: A 1 B 1 C 1

Points Factor 5: A 10 + B 0 + C 10 = 20 TOTAL

FACTOR 6: Proximity to Near Coastal Waters

- A. *Base Score: Enter flow code here (from Factor 2):* 51

Enter the multiplication factor that corresponds to the flow code: 0.10

Check appropriate facility HPRI Code (from PCS):

	HPRI#	Code	HPRI Score	Flow Code	Multiplication Factor
<input type="checkbox"/>	1	1	20	11, 31, or 41	0.00
<input type="checkbox"/>	2	2	0	12, 32, or 42	0.05
<input type="checkbox"/>	3	3	30	13, 33, or 43	0.10
<input checked="" type="checkbox"/>	4	4	0	14 or 34	0.15
<input type="checkbox"/>	5	5	20	21 or 51	0.10
				22 or 52	0.30
				23 or 53	0.60
				24	1.00

HPRI code checked: 4

Base Score: (HPRI Score) 0 X (Multiplication Factor) 0.1 = 0 (TOTAL POINTS)

- B. *Additional Points* ☐ *NEP Program*
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

N/A

- C. *Additional Points* ☐ *Great Lakes Area of Concern*
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see Instructions)

N/A

		Code	Points
<input type="checkbox"/>	Yes	1	10
<input type="checkbox"/>	No	2	0

		Code	Points
<input type="checkbox"/>	Yes	1	10
<input type="checkbox"/>	No	2	0

Code Number Checked: A 4 B N/A C N/A -

Points Factor 6: A 0 + B NA + C NA = 0 TOTAL

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SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	<u>45</u>
2	Flows/Streamflow Volume	<u>0</u>
3	Conventional Pollutants	<u>25</u>
4	Public Health Impacts	<u>15</u>
5	Water Quality Factors	<u>20</u>
6	Proximity to Near Coastal Waters	<u>0</u>
TOTAL (Factors 1 through 6)		<u>105</u>

S1. Is the total score equal to or greater than 80? ☒ Yes (Facility is a major) ☐ No

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

☐ No

☐ Yes (Add 500 points to the above score and provide reason below:

Reason:

NEW SCORE: 105

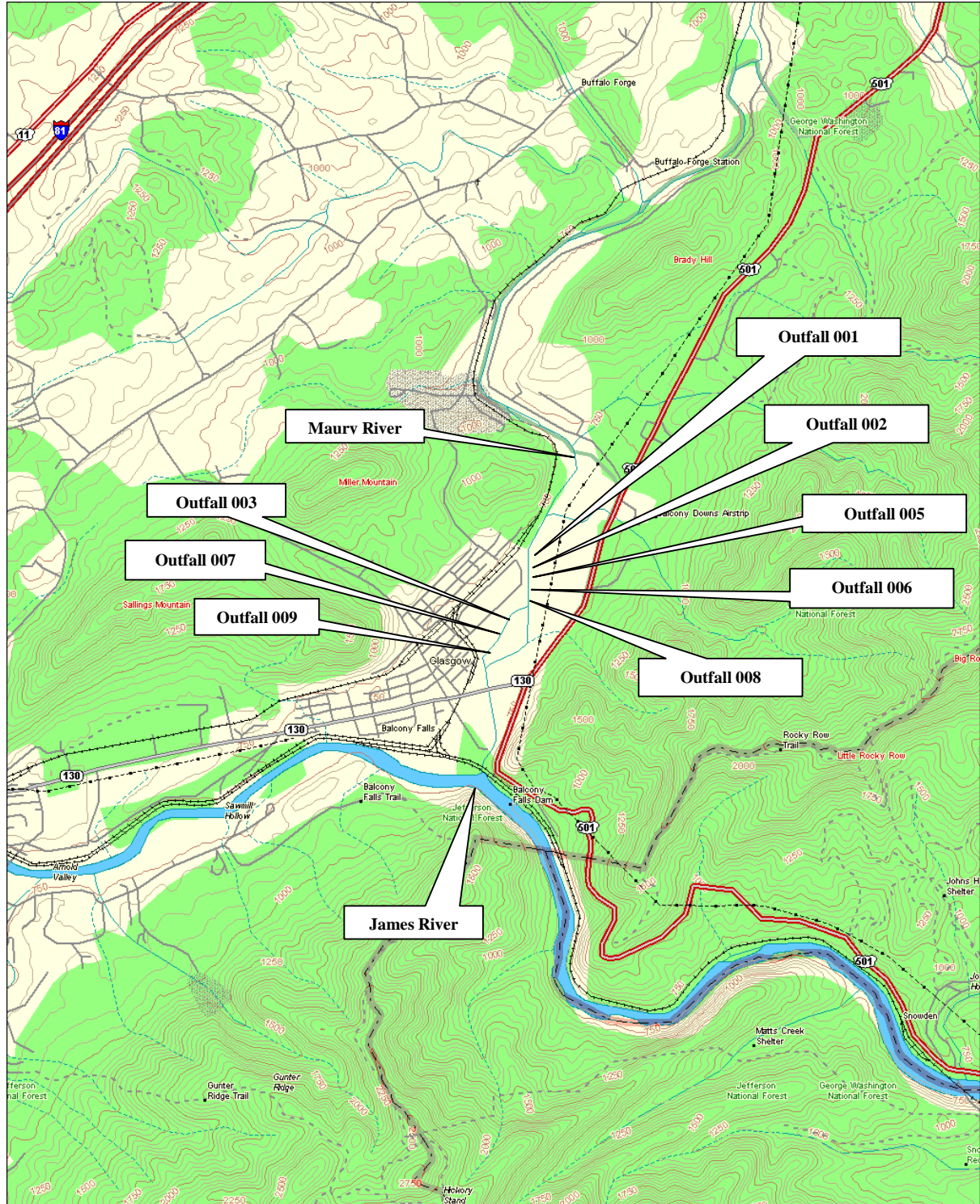
OLD SCORE: 120

Dawn Jeffries
Permit Writer's Name
540-574-7898
Phone Number
September 11, 2014
Date

APPENDIX B

DISCHARGE LOCATION AND RECEIVING WATERS INFORMATION

External outfalls discharge to the Maury River and are shown on the topographic map below.



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PLANNING INFORMATION

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the Water Quality Assessments Review table below.

WATER QUALITY ASSESSMENTS REVIEW						
UPPER JAMES RIVER BASIN						
9/10/2014						
IMPAIRED SEGMENTS						
SEGMENT ID	STREAM	SEGMENT START	SEGMENT END	SEGMENT LENGTH	PARAMETER	
I37R-02-PCB	Maury River	17.42	0.00	17.46	PCB in Fish Tissue	
I37R-03-BAC	Maury River	12.84	0.00	12.84	E-coli	
I38R-01-BAC	Buffalo Creek	15.51	0.00	15.51	Fecal Coliform, E-coli	
PERMITS						
PERMIT	FACILITY	STREAM	RIVER MILE	LAT	LONG	WBID
VA0004677	Mohawk Industries-001	Maury River	1.50	373836	0792621	VAV-I37R
VA0004677	Mohawk Industries-007	Maury River	1.07	373815	0792630	VAV-I37R
VA0002771	Modine Manufacturing Co -	Indian Gap Run	0.20	374337	0792134	VAV-I37R
VA0020991	Buena Vista STP	Maury River	11.43	374337	0792149	VAV-I37R
VA0083712	Glasgow STP	James River	287.45	373725	0792644	VAV-I28R
MONITORING STATIONS						
STREAM	NAME	RIVER MILE	RECORD	LAT	LONG	
Buffalo Creek	2-BLD009.33	9.33	6/20/01	374314	0792938	
Elk Creek	2-ELK001.37	1.37	7/1/91	373604	0793016	
James River	2-JMS290.85	290.85	9/23/99	373656	0792956	
Maury River	2-MRY000.09	0.09	3/25/70	373730	0792639	
Maury River	2-MRY000.46	0.46	3/25/70	373754	0792638	
Maury River	2-MRY010.01	10.01	9/25/67	373854	0792634	
Maury River	2-MRY005.39	5.39	8/4/88	374050	0792456	
Maury River	2-MRY007.00	7	8/4/88	374200	0792435	
Maury River	2-MRY009.20	9.2	6/3/92	374223	0792259	
Maury River	2-MRY011.23	11.23	1/16/69	374335	0792202	
Maury River	2-MRY011.26	11.26	5/14/92	374335	0792159	
Maury River	2-MRY011.86	11.86	7/1/97	374357	0792133	
Poague Run	2-PGH002.44	2.44	2/8/11	374047	0792713	
Maury River	2-MRY004.27	4.27	10/6/03	374022	0792555	
Maury River	2-MRY002.25	2.25	5/9/08	373923	0792623	
Buffalo Creek	2-BLD000.22	0.22	10/15/98	374044	0792538	
Buffalo Creek	2-BLD012.09	12.09	10/15/98	374358	0792929	
Maury River	2-MRY000.32	0.32	3/22/05	373747	0792636	
Maury River	2-MRY000.79	0.79		373804	0792632	
Maury River	2-MRY005.58	5.58	5/7/07	374058	0792451	
Maury River	2-MRY009.77	9.77	10/24/07	374241	0792230	
PUBLIC WATER SUPPLY INTAKES						
OWNER	STREAM	RIVER MILE				
None						
WATER QUALITY MANAGEMENT PLANNING REGULATION						
Is this discharge addressed in the WQMP regulation? Yes						
If Yes, what effluent limitations or restrictions does the WQMP regulation impose on this discharge?						
PARAMETER	ALLOCATION					
BOD ₅	358.53 kg/day					
Nutrients under the Watershed General Permit						
WATERSHED NAME						
VAV-I37R Lower Maury River/Poague Run						

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

FLOW FREQUENCY DETERMINATION

The VDEQ has operated a continuous record gage on the Maury River near Buena Vista, VA (#02024000) since 1938. The gage is located upstream of the discharge point, near Buena Vista, in Rockbridge County, VA. There are two existing dischargers (Modine Manufacturing and Buena Vista STP) located between the gage site and the discharge point. The flow frequencies at the discharge point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The average monthly discharge from Modine Manufacturing (0.12 MGD) and Buena Vista STP (1.4 MGD) were then added to the stream flow. The data for the gage and the discharge point are presented below.

Maury River near Buena Vista, VA (#02024000):

Drainage Area = 647 mi ²			
1Q30 =	40 cfs	High Flow 1Q10 =	97 cfs
1Q10 =	53 cfs	High Flow 7Q10 =	107 cfs
7Q10 =	60 cfs	High Flow 30Q10 =	144 cfs
30Q10 =	68 cfs	HM =	239 cfs
30Q5 =	80 cfs		

Maury River at the discharge point:

Drainage Area = 836.3 mi ²					
1Q30 =	51.7 cfs	(34.8 mgd)	High Flow 1Q10 =	125 cfs	(82.4 mgd)
1Q10 =	68.5 cfs	(45.7 mgd)	High Flow 7Q10 =	138 cfs	(90.8 mgd)
7Q10 =	77.6 cfs	(51.6 mgd)	High Flow 30Q10 =	186 cfs	(122 mgd)
30Q10 =	87.9 cfs	(58.2 mgd)	HM =	309 cfs	(201 mgd)
30Q5 =	103 cfs	(68.2 mgd)			

The high flow months are December through May.

The analysis assumes that there are no other significant discharges, withdrawals, or springs that may influence the flow in the Maury River upstream of the discharge point.

REVIEWER: BWC

DATE: 9/9/14

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

EFFLUENT/STREAM MIXING EVALUATION

Mixing zone predictions were made with the Virginia DEQ Mixing Zone Analysis Version 2.1 program based on the discharge and receiving stream characteristics and are presented below. Mixing calculations for Outfall 001 for acute conditions (1Q10) for 1.1 MGD and 2.0 MGD flows are shown on page 5 of this appendix.

Outfall 001 – 0.50 MGD

Annual

Stream 7Q10 = 51.6 MGD
Stream 30Q10 = 58.2 MGD
Stream 1Q10 = 45.7 MGD
Stream slope = 0.00148 ft/ft
Stream width = 75 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 1.57 ft
Length = 3588.62 ft
Velocity = .6849 ft/sec
Residence Time = .0606 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 1.6885 ft
Length = 3370.64 ft
Velocity = .7175 ft/sec
Residence Time = .0544 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = 1.4591 ft
Length = 3821.78 ft
Velocity = .6535 ft/sec
Residence Time = 1.6244 hours

Recommendation: A complete mix assumption is appropriate for this situation providing no more than 61.56% of the 1Q10 is used.

Outfall 001 – 1.1 MGD

Annual

Stream 7Q10 = 51.6 MGD
Stream 30Q10 = 58.2 MGD
Stream 1Q10 = 45.7 MGD
Stream slope = 0.00148 ft/ft
Stream width = 75 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 1.561 ft
Length = 3635.87 ft
Velocity = .688 ft/sec
Residence Time = .0612 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 1.699 ft
Length = 3352.68 ft
Velocity = .7204 ft/sec
Residence Time = .0539 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Outfall 001 – 2.0 MGD

Annual

Stream 7Q10 = 51.6 MGD
Stream 30Q10 = 58.2 MGD
Stream 1Q10 = 45.7 MGD
Stream slope = 0.00148 ft/ft
Stream width = 75 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 1.5973 ft
Length = 3536.07 ft
Velocity = .6926 ft/sec
Residence Time = .0591 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 1.7147 ft
Length = 3326.17 ft
Velocity = .7246 ft/sec
Residence Time = .0531 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

Outfall 001 - Mixing at Acute Conditions (1Q10)

A CORMIX2 program was run for this discharge in 1993 to determine the acute dilution at the diffuser for 1.045 MGD and 2.0 MGD flows. The acute dilution factors determined at that time have been used in developing subsequent permits and are carried forward in this reissuance. The results were:

Effluent flow of 1.045 MGD – acute dilution = 18:1

Effluent flow of 2.0 MGD – acute dilution = 15.8:1

Percent Mix Calculations Using Historical Dilution Factors:

Effluent Flow (MGD) x Dilution Factor = Equivalent Flow (MGD)

$$\frac{\text{Equivalent Flow (MGD)}}{\text{Critical flow (MGD)}} \times 100 = \% \text{ Mix}$$

At the 1.1 MGD flow tier:

$$1.1 \text{ MGD} \times 18 = 19.8 \text{ MGD}$$

Under annual acute conditions (1Q10):

$$\frac{19.8 \text{ MGD}}{45.7 \text{ MGD}} \times 100 = 43.3 \% \text{ Mix}$$

Under high flow acute conditions (High Flow 1Q10):

$$\frac{19.8 \text{ MGD}}{82.4 \text{ MGD}} \times 100 = 24.0 \% \text{ Mix}$$

At the 2.0 MGD flow tier:

$$2.0 \text{ MGD} \times 15.8 = 31.6 \text{ MGD}$$

Under annual acute conditions (1Q10):

$$\frac{31.6 \text{ MGD}}{45.7 \text{ MGD}} \times 100 = 69.1 \% \text{ Mix}$$

Under high flow acute conditions (High Flow 1Q10):

$$\frac{31.6 \text{ MGD}}{82.4 \text{ MGD}} \times 100 = 38.3 \% \text{ Mix}$$

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

Outfall 007 – 0.2 MGD

Annual

Effluent Flow = 0.28 MGD
Stream 7Q10 = 51.6 MGD
Stream 30Q10 = 58.2 MGD
Stream 1Q10 = 45.7 MGD
Stream slope = 0.00148 ft/ft
Stream width = 75 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 1.5659 ft
Length = 3596.59 ft
Velocity = .6838 ft/sec
Residence Time = .0609 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 1.6846 ft
Length = 3377.31 ft
Velocity = .7165 ft/sec
Residence Time = .0546 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = 1.4548 ft
Length = 3831.42 ft
Velocity = .6523 ft/sec
Residence Time = 1.6316 hours

Recommendation: A complete mix assumption is appropriate for this situation providing no more than 61.29% of the 1Q10 is used.

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

SITE VISIT

On October 24, 2014 the writer and Megan O’Gorek performed a site visit at the subject facility. Stephen Chesnut, Wastewater Treatment Operator in Charge, was also present.



Outfall 001 Diffuser



Outfall 007



Internal Outfall 104

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

APPENDIX C

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS

A comparison of technology and water quality-based limits was performed and the most stringent limits were selected, as summarized in the table below.

Outfall 001

Final Limits

Design Flow: 0.50 MGD

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		Continuous	TIRE
BOD ₅	2,4	120 mg/L	220 kg/d	240 mg/L	450 kg/d	2/Month	24 HC
TSS	2	180 mg/L	340 kg/d	350 mg/L	670 kg/d	2/Month	24 HC
COD	2	880 mg/L	1700 kg/d	1800 mg/L	3300 kg/d	2/Month	24 HC
Total Chromium	2	0.69 mg/L	1.3 kg/d	1.4 mg/L	2.6 kg/d	2/Month	24 HC
Total Phenols	2	0.69 mg/L	1.3 kg/d	1.4 mg/L	2.6 kg/d	2/Month	Grab
Total Sulfide	2	1.4 mg/L	2.6 kg/d	2.8 mg/L	5.2 kg/d	2/Month	Grab
Effluent Chlorine (TRC)(mg/L)*	3	0.75		1.1		1/Week	Grab
Color (ADMI)	3,5	NL		NL		1/3 Months	24 HC
E. coli (N/100 mL) (geometric mean)	3	126		NA		4/Month in any month of each calendar quarter 10 a.m. to 4 p.m.	Grab
-----	-----	Minimum		Maximum		-----	-----
pH (S.U.)	2,3	6.5		9.0		2/Month	Grab

NL = No Limitation, monitoring required

NA = Not Applicable

TIRE = Totalizing, Indicating, and Recording equipment

24 HC = 24-Hour Composite

2/Month = 2 samples taken during the calendar month, no less than 7 days apart

4/Month in any month of each calendar quarter = 4 samples taken, with at least 1 sample taken each calendar week, in any calendar month of each quarter and reported with the DMRs due January 10th, April 10th, July 10th and October 10th of each year

1/3 Months = Sampling each calendar quarter with the results submitted with the DMR due January 10th, April 10th, July 10th and October 10th of each year

* Applicable only when chlorination is utilized for disinfection at Outfall 104

BASIS DESCRIPTIONS

1. VPDES Permit Regulation (9VAC25-31)
2. Federal Effluent Requirements (Textile Mills Point Source Category – 40 CFR 410)
3. Water Quality Standards (9VAC25-260)
4. Regional Stream Model Simulation
5. Best Professional Judgment (BPJ)

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

Outfall 001

Final Limits

Design Flow: 1.1 MGD

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		Continuous	TIRE
BOD ₅	2,4	54 mg/L	220 kg/d	110 mg/L	450 kg/d	2/Month	24 HC
TSS	2	80 mg/L	340 kg/d	160 mg/L	670 kg/d	2/Month	24 HC
COD	2	400 mg/L	1700 kg/d	800 mg/L	3300 kg/d	2/Month	24 HC
Total Chromium	2	0.31 mg/L	1.3 kg/d	0.63 mg/L	2.6 kg/d	2/Month	24 HC
Total Phenols	2	0.31 mg/L	1.3 kg/d	0.63 mg/L	2.6 kg/d	2/Month	Grab
Total Sulfide	2	0.63 mg/L	2.6 kg/d	1.3 mg/L	5.2 kg/d	2/Month	Grab
Effluent Chlorine (TRC)(mg/L)*	3	0.25		0.36		1/Week	Grab
Color (ADMI)	3,5	NL		NL		1/3 Months	24 HC
WET (TUC)	1,3	NA		50		1/3 Months	24 HC
E. coli (N/100 mL) (geometric mean)	3	126		NA		4/Month in any month of each calendar quarter 10 a.m. to 4 p.m.	Grab
-----	-----	Minimum		Maximum		-----	-----
pH (S.U.)	2,3	6.5		9.0		2/Month	Grab

NL = No Limitation, monitoring required

NA = Not Applicable

TIRE = Totalizing, Indicating, and Recording equipment

24 HC = 24-Hour Composite

2/Month = 2 samples taken during the calendar month, no less than 7 days apart

4/Month in any month of each calendar quarter = 4 samples taken, with at least 1 sample taken each calendar week, in any calendar month of each quarter and reported with the DMRs due January 10th, April 10th, July 10th and October 10th of each year

1/3 Months = Sampling each calendar quarter with the results submitted with the DMR due January 10th, April 10th, July 10th and October 10th of each year

* Applicable only when chlorination is utilized for disinfection at Outfall 104

BASIS DESCRIPTIONS

1. VPDES Permit Regulation (9VAC25-31)
2. Federal Effluent Requirements (Textile Mills Point Source Category – 40 CFR 410)
3. Water Quality Standards (9VAC25-260)
4. Regional Stream Model Simulation
5. Best Professional Judgment (BPJ)

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

Outfall 001

Final Limits

Design Flow: 2.0 MGD

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		Continuous	TIRE
BOD ₅	2,4	30 mg/L	220 kg/d	59 mg/L	450 kg/d	2/Month	24 HC
TSS	2	44 mg/L	340 kg/d	88 mg/L	670 kg/d	2/Month	24 HC
COD	2	220 mg/L	1700 kg/d	440 mg/L	3300 kg/d	2/Month	24 HC
Total Chromium	2	0.17 mg/L	1.3 kg/d	0.35 mg/L	2.6 kg/d	2/Month	24 HC
Total Phenols	2	0.17 mg/L	1.3 kg/d	0.35 mg/L	2.6 kg/d	2/Month	Grab
Total Sulfide	2	0.35 mg/L	2.6 kg/d	0.69 mg/L	5.2 kg/d	2/Month	Grab
Effluent Chlorine (TRC)(mg/L)*	3	0.22		0.32		1/Week	Grab
Color (ADMI)	3,5	NL		NL		1/Quarter	24 HC
WET (TUC)	1,3	NA		33		1/Quarter	24 HC
E. coli (N/100 mL) (geometric mean)	3,6	126		NA		4/Month in any month of each calendar quarter 10 a.m. to 4 p.m.	Grab
-----	-----	Minimum		Maximum		-----	-----
pH (S.U.)	2,3	6.5		9.0		2/Month	Grab

NL = No Limitation, monitoring required

NA = Not Applicable

TIRE = Totalizing, Indicating, and Recording equipment

24 HC = 24-Hour Composite

2/Month = 2 samples taken during the calendar month, no less than 7 days apart

4/Month in any month of each calendar quarter = 4 samples taken, with at least 1 sample taken each calendar week, in any calendar month of each quarter and reported with the DMRs due January 10th, April 10th, July 10th and October 10th of each year

1/3 Months = Sampling each calendar quarter with the results submitted with the DMR due January 10th, April 10th, July 10th and October 10th of each year

* Applicable only when chlorination is utilized for disinfection at Outfall 104

BASIS DESCRIPTIONS

1. VPDES Permit Regulation (9VAC25-31)
2. Federal Effluent Requirements (Textile Mills Point Source Category – 40 CFR 410)
3. Water Quality Standards (9VAC25-260)
4. Regional Stream Model Simulation
5. Best Professional Judgment (BPJ)
6. Maury River TMDL

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

Outfall 007

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		Monthly Average	Maximum	Frequency	Sample Type
Flow (MGD)	1	NL	NL	1/3 Months	Estimate
Effluent Chlorine (TRC)(mg/L)	3	1.9	1.9	1/3 Months	Grab
-----	-----	Minimum	Maximum	-----	-----
pH (S.U.)	2,3	6.5	9.0	1/3 Months	Grab
Temperature (°C)	3	NA	31	1/3 Months	Immersion Stabilization

NL = No Limitation, monitoring required

NA = Not Applicable

1/3 Months = Sampling each calendar quarter with the results submitted with the DMR due January 10th, April 10th, July 10th and October 10th of each year

BASIS DESCRIPTIONS

1. VPDES Permit Regulation (9VAC25-31)
2. General Permit for Cooling Water Discharges (9VAC25-196)
3. Water Quality Standards (9VAC25-260)

Internal Outfall 701 - Coal Pile Runoff (Previously 907)

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		Monthly Average	Maximum	Frequency	Sample Type
Flow (MGD)	---	NA	NA	---	---
-----	-----	Minimum	Maximum	-----	-----
pH (S.U.)	1	6.0	9.0	1/Year	Grab
TSS (mg/L)	1	NA	50	1/Year	Grab

NA = Not Applicable

1/Year = Annual testing results shall be submitted with the DMR due January 10th of the following year

BASIS DESCRIPTIONS

1. Guidance Memo No. 14-2003

Outfall 902 & 907 (stormwater associated with industrial activity)

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		Monthly Average	Maximum	Frequency	Sample Type
Total Suspended Solids	1	NA	NL	1/6 Months	Grab
TKN	1	NA	NL	1/6 Months	Grab
Nitrite + Nitrate	1	NA	NL	1/6 Months	Grab
Total Phosphorus	1	NA	NL	1/6 Months	Grab
Total Nitrogen*	1	NA	NL	1/6 Months	Calculated

NL = No Limitation, monitoring required

NA = Not Applicable

* Total Nitrogen, which is the sum of TKN and Nitrite + Nitrate, shall be determined from the results of those tests

1/6 Months = Semiannual sampling (January 1 – June 30 and July 1 – December 31) with the results submitted with the DMR due January 10th and July 10th of each year until data from a minimum of four semiannual samples have been submitted

BASIS DESCRIPTIONS

1. Guidance Memo No. 14-2011

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Outfall 104

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		Monthly Average	Maximum	Frequency	Sample Type
Flow (MGD)	1	NL	NL	1/Month	Estimate
Effluent Chlorine (TRC)(mg/L)*	2	NA	4.0	1/Day	Grab
E. coli (N/100 mL)** (geometric mean)	2	126	NA	4/Month in any single calendar month* or 4/Month** 10 a.m. to 4 p.m.	Grab
-----	-----	Minimum	Maximum	-----	-----
Contact Chlorine* (TRC)(mg/L)*	2	1.0	NA	1/Day	Grab

NL = No Limitation, monitoring required

NA = Not Applicable

4/Month = 4 samples taken monthly, with at least 1 sample taken each calendar week

4/Month in any single calendar month = 4 samples taken monthly, with at least 1 sample taken each calendar week in any single calendar month and reported with the December DMR due January 10th of every year

* = Applicable only when chlorination is used for disinfection

** = Applicable if an alternative to chlorination is used for disinfection.

BASIS DESCRIPTIONS

1. VPDES Permit Regulation (9VAC25-31)
2. Best Professional Judgment (BPJ)

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

LIMITING FACTORS – OVERVIEW:

The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (WQMP) (9VAC25-720)	
A. TMDL limits	E. coli
B. Non-TMDL WLAs	BOD₅
C. CBP (TN & TP) WLAs	TN and TP via GP VAN040067
Chesapeake Bay TMDL, Appendix Q	Included in VA James River Significant PS Aggregate WLA for TN, TP and TSS
Federal Effluent Guidelines	BOD₅, TSS, COD, pH, Chromium, Phenols, Sulfide
BPJ/Agency Guidance limits	TRC (contact), pH
Water Quality-based Limits - numeric	CBOD₅, DO, TRC (effluent), E. coli, pH, Ammonia-N
Water Quality-based Limits - narrative	Color
Technology-based Limits (9VAC25-40-70)	None
Whole Effluent Toxicity (WET)	See page C-21 through C-24
Stormwater Limits	TSS, pH

EVALUATION OF THE EFFLUENT – EFFLUENT LIMITATION GUIDELINES POLLUTANTS, OUTFALL 001

Process wastewater, discharged through Outfall 001 is covered by three categories of the EPA Effluent Limitation Guidelines (ELG) as found in 40 CFR Part 410 for the Textile Mills Point Source Category: Subpart C (Low Water Use Processing Subcategory), Subpart F (Carpet Finishing Subcategory), and Subpart G (Stock and Yarn Finishing Subcategory). These three subparts prescribe BPT/BAT limits for BOD₅, COD, TSS, Sulfide, Phenol, Total Chromium, and pH as shown in Table 1. Mass limits in lbs/day are shown in Table 2, and mass limits in kg/day with corresponding concentrations are shown in Table 3. Permit flow tiers include the existing permitted tiers of 0.5 MGD, 1.1 MGD, and the design flow of 2.0 MGD.

Table 1 - Summary of BPT/BAT, Most Restrictive ELGs

PARAMETER	Subpart C		Subpart F		Subpart G	
	Monthly Avg Limits (lbs/1000 lbs product)	Daily Max Limits (lbs/1000 lbs product)	Monthly Avg Limits (lbs/1000 lbs product)	Daily Max Limits (lbs/1000 lbs product)	Monthly Avg Limits (lbs/1000 lbs product)	Daily Max Limits (lbs/1000 lbs product)
BOD ₅	0.7	1.4	3.9	7.8	3.4	6.8
COD	1.4	2.8	35.1	70.2	42.3	84.6
TSS	0.7	1.4	5.5	11.0	8.7	17.4
Sulfide	NA		0.04	0.08	0.12	0.24
Phenol	NA		0.02	0.04	0.06	0.12
Total Chromium	NA		0.02	0.04	0.06	0.12

*pH requirement for all subparts is within the range of 6-9 at all times

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Table 2 - Summary of Calculated Limits (lbs/day)*

PARAMETER	Subpart C		Subpart F		Subpart G		Subparts Total	
	Monthly Avg Limits (lbs/day)	Daily Max Limits (lbs/day)	Monthly Avg Limits (lbs/day)	Daily Max Limits (lbs/day)	Monthly Avg Limits (lbs/day)	Daily Max Limits (lbs/day)	Monthly Avg Limits (lbs/day)	Daily Max Limits (lbs/day)
BOD5	158.05	316.11	243.19	486.38	93.11	186.22	494.36	988.72
COD	316.11	632.21	2188.73	4377.46	1158.43	2316.86	3663.27	7326.53
TSS	158.05	316.11	342.96	685.93	238.26	476.52	739.28	1478.55
Sulfide			2.49	4.99	3.29	6.57	5.78	11.56
Phenol			1.25	2.49	1.64	3.29	2.89	5.78
Total Chromium			1.25	2.49	1.64	3.29	2.89	5.78

Based on production of 225,791 lbs/day for Subpart C; 27,386 lbs/day for Subpart G; and 62,357 lbs/day for Subpart F

Table 3 - Summary of Calculated Limits (kg/day) & Concentration Equivalents

PARAMETER	Subparts Total (lbs/day)		Limitation (kg/day)*		Limitation at 0.50 mgd (mg/l)**		Limitation at 1.1 mgd (mg/l)**		Limitation at 2.0 mgd (mg/l)**	
	Monthly Avg Limits	Daily Max Limits	Monthly Avg Limits	Daily Max Limits	Monthly Avg Limits	Daily Max Limits	Monthly Avg Limits	Daily Max Limits	Monthly Avg Limits	Daily Max Limits
BOD5	494.36	988.72	224.19	448.38	118.46	236.93	53.85	107.69	29.62	59.23
COD	3663.27	7326.53	1661.29	3322.58	877.83	1755.66	399.01	798.03	219.46	438.91
TSS	739.28	1478.55	335.26	670.52	177.15	354.31	80.52	161.05	44.29	88.58
Sulfide	5.78	11.56	2.62	5.24	1.39	2.77	0.63	1.26	0.35	0.69
Phenol	2.89	5.78	1.31	2.62	0.69	1.39	0.31	0.63	0.17	0.35
Total Chromium	2.89	5.78	1.31	2.62	0.69	1.39	0.31	0.63	0.17	0.35

* Converted from lbs/day and rounded to two significant digits

**Converted from kg/day and rounded to two significant digits

EVALUATION OF THE EFFLUENT – CONVENTIONAL POLLUTANTS, OUTFALL 001

This discharge was remodeled using the Regional Stream Model (v 4.11) at this reissuance to reflect current information. The model is maintained in the DEQ-Valley Regional Office and is available for review upon request. The antidegradation baseline for the Maury River in the vicinity of the discharge was established in 1985 as 6.12 mg/L. The limits below were demonstrated to maintain the DO baseline for the Maury River. As a conservative approach, the CBOD₅ limits used in the model are considered to be equivalent to the BOD₅ limits determined to be necessary based upon ELGs.

<u>0.50 MGD</u>		<u>1.1 MGD</u>		<u>2.0 MGD</u>	
CBOD ₅	120 mg/L	CBOD ₅	54 mg/L	CBOD ₅	30 mg/L
TKN	44.1 mg/L	TKN	28.1 mg/L	TKN	16.9 mg/L
DO	0.0 mg/L	DO	0.0 mg/L	DO	0.0 mg/L

The WQMP imposes a monthly average BOD₅ loading limit of 358.53 kg/day. This translates to the following monthly average BOD₅ concentrations:

<u>Design Flow</u>	<u>BOD₅</u>
0.50 MGD	190 mg/L
1.1 MGD	86 mg/L
2.0 MGD	47 mg/L

BOD₅ limits based upon ELGs are more stringent than WQMP BOD₅ limits. Because there is not a direct BOD₅/CBOD₅ correlation for industrial wastewater, BOD₅ concentrations equivalent to modeled CBOD₅ concentrations were included in the permit.

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Based on the model, it was determined that no TKN limits were needed at any flow tier because based on monitoring data provided by the permittee, the treatment plant is not expected to discharge effluent with TKN concentrations greater than those used in the model.

Because the model demonstrated that an effluent DO of 0 mg/L was protective at all flow tiers, this permit does not include a DO limit.

The TSS limits calculated based upon ELGs have been included in the permit. No TSS TMDL allocations currently apply at this discharge.

The previous permit required pH at Outfall 001 to be within the range of 6.5-9.0 S.U. based upon ELGs and the WQS of the receiving stream of 6.5-9.5 S.U. These requirements have been carried forward.

The previous permit required monitoring without a limit for color at Outfall 001. These requirements have been carried forward.

EVALUATION OF THE EFFLUENT – DISINFECTION:

Outfall 104

The current permit monitors the disinfection of treated domestic wastewater through minimum TRC limits for Outfall 104, with samples collected after chlorination. These effluent limits and monitoring requirements are retained in this permit. In addition to the minimum TRC contact requirements, E. coli monitoring at a frequency of 4/Month during at least one month of each calendar year and an associated limit have been included at this reissuance to ensure effective disinfection is achieved. This additional E. coli monitoring has been imposed in accordance with Guidance Memo No. 14-2003.

Outfall 001

The current permit contains E. coli limits and 2/Month monitoring at Outfall 001. The limit is being carried forward and the monitoring is being changed to 4/Month for one month of each calendar quarter in accordance with Guidance Memo No. 14-2003. E. coli limits are consistent with the TMDL WLA of 3.55×10^{12} cfu/yr and are protective of the current WQS for E. coli in the receiving stream.

EVALUATION OF THE EFFLUENT – NUTRIENTS:

In accordance with § 62.1-44.19:14.C.5. of the Code of Virginia, this Significant Discharger has submitted a Registration Statement and DEQ has recognized that they are covered under the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for TN and TP Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) (GP). The effective date of coverage is January 1, 2012. Coverage under the GP will expire December 31, 2016. The load limit for TN is 30,456 pounds per calendar year and TP is 12,182 pounds per calendar year.

Prior to a facility expansion, the permittee must demonstrate that sufficient WLAs have been acquired to offset any increase in the delivered TN and delivered TP loads. The CER requirement and the permit reopener condition ensure that the facility will receive appropriate concentration limits when necessary for expanded or upgraded facilities based on the treatment technology proposed.

EVALUATION OF STORMWATER & NON-PROCESS WASTEWATERS – OUTFALL 007

As detailed on Page A-1, Outfall 007 discharges overflow from the water tank, and stormwater associated with industrial activity, including the remnants of a coal pile. The effluent at this discharge has not changed during the permit cycle and permit requirements from the previous permit have been carried forward at Outfall 007, except for the TRC limit, which has gone down due to current flow information. In addition, stormwater requirements for the coal pile in the previous permit at Outfall 907 have been carried forward and the outfall number has been changed to 701. Stormwater monitoring for TSS and nutrients has also been added for the first two years of the permit as designated for Outfall 907.

EVALUATION OF STORMWATER – OUTFALL 002

Stormwater monitoring for TSS and nutrients has also been added for the first two years of the permit as designated for Outfall 902.

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EVALUATION OF THE EFFLUENT – TOXICS:

Stream: Water quality data for the receiving stream were obtained from Ambient Monitoring Station No. 2-MRY000.09 on the Maury River at the DGIF boat launch. A Flow Frequency Determination for the receiving stream is included in Appendix A. The “Wet Season” or “High Flow” months are December through May.

Stream Information			
90% Annual Temp (°C) =	25.8	90% pH (SU) =	8.5
90% Wet Temp (°C) =	16.9	10% pH (SU) =	7.8
Mean Hardness (mg/L) =	116		

All toxic pollutants, including Ammonia-N and TRC, are assumed absent in the receiving stream because there are no data for these parameters directly above the discharge.

Discharge: Outfall 001 – The maximum 30-day average monthly flow for the term of the previous permit was 0.31 MGD. The pH and temperature values were carried forward. The hardness values were obtained from recent TMP reports submitted by the permittee.

Outfall 001 Effluent Information			
90% Annual Temp (°C) =	25	90% pH (SU) =	7.4
90% Wet Temp (°C) =	23	10% pH (SU) =	6.9
Mean Hardness (mg/L) =	178		

Outfall 007 – The maximum 30-day average monthly flow for the term of the previous permit was 0.28 MGD. Because the only toxic being evaluated for this outfall is TRC; pH, temperature, and hardness values were not needed.

WQC and WLAs were calculated for the WQS parameters for which data is available. Those WQC and WLAs are presented in this appendix. Available data were evaluated against the WLAs of the highest flow tier. If no limits were necessary at that flow tier, no limits would be needed at the lower flow tiers and no statistical evaluations for them are shown. In accordance with agency guidance, Ammonia-N was evaluated against antidegradation WLAs as was done in previously reissuances. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

Outfall 001 – 0.50 MGD Flow Tier:

- TRC: Limits identical to those in the previous permit were determined to be necessary and have been carried forward.
- Ammonia-N: Ammonia-N limits have been determined to not be necessary based on the evaluation performed for the 2.0 MGD flow tier and have been removed. The removal of the limits meets antibacksliding requirements because new instream pH and temperature data were available at this reissuance. In addition, new information was available on operational changes that have been made within the company avoiding the use of dyes which contain nitrogen.
- Copper: No limits were determined to be necessary.
- DDD: No limits were determined to be necessary when the effluent data were compared to the Human Health WLAs.
- Monitoring is needed for Dissolved Sulfide to the QL indicated in the permit. The permittee must monitor the effluent for this parameter once after the start of the third year from the permit’s effective date.
- Although previously determined to not have reasonable potential to exceed WQS, monitoring is required for bromoform, chloroform, chlorodibromomethane, and dichlorobromomethane. Since 2011, bromide and chlorine are used to control bacteria, and the potential of increased trihalomethanes in the effluent should be re-evaluated.

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Outfall 001 – 1.1 MGD Flow Tier:

- TRC: Limits identical to those in the previous permit were determined to be necessary and have been carried forward.
- Ammonia-N: Ammonia-N limits have been determined to not be necessary based on the evaluation performed for the 2.0 MGD flow tier and have been removed. The removal of the limits meets antibacksliding requirements because new instream pH and temperature data were available at this reissuance. In addition, new information was available on operational changes that have been made within the company
- Copper: No limits were determined to be necessary.
- DDD: No limits were determined to be necessary when the effluent data were compared to the Human Health WLAs.
- Monitoring is needed for Dissolved Sulfide to the QL indicated in the permit. The permittee must monitor the effluent for this parameter once after the start of the third year from the permit's effective data.
- Although previously determined to not have reasonable potential to exceed WQS, monitoring for bromoform, chloroform, chlorodibromomethane, and dichlorobromomethane is required. Since 2011, bromide and chlorine are used to control bacteria, and the potential of increased trihalomethanes in the effluent should be re-evaluated.

Outfall 001 – 2.0 MGD Flow Tier:

- TRC: An identical monthly average limit and a slightly less stringent daily maximum limit than those in the previous permit were determined to be necessary based on changes in mix calculations. Because new information was available which would have justified a less stringent limit when the previous limit was established, had that information been available, the less stringent daily maximum TRC limit in this permit reissuance complies with the antibacksliding provisions of the VPDES Permit Regulation.
- Ammonia-N: Ammonia-N limits have been determined to not be necessary and have been removed. The removal of the limits meets antibacksliding requirements because new instream pH data were available at this reissuance. In addition, new information was available on operational changes that have been made within the company avoiding the selection of dyes which contain nitrogen.
- Copper: No limits were determined to be necessary.
- DDD: Evaluation of current data is inconclusive and additional monitoring is required.
- Monitoring is needed for Dissolved Sulfide to the QL indicated in the permit. The permittee must monitor the effluent for this parameter once after the start of the third year from the permit's effective data.
- Although previously determined to not have reasonable potential to exceed WQS, monitoring for bromoform, chloroform, chlorodibromomethane, and dichlorobromomethane is required. Since 2011, bromide and chlorine are used to control bacteria, and the potential of increased trihalomethanes in the effluent should be re-evaluated.

Outfall 007:

- TRC: More stringent limits than those in the previous permit were determined to be necessary and are included. A compliance schedule is not included since effluent data shows that the new limit is already being met.

COMPARISON OF TECHNOLOGY AND WATER QUALITY-BASED LIMITS FOR TOXICS

Phenol is the only parameter monitored and limited by ELGs for this facility that also has a water quality-based WLA. As shown on page C-13, the most stringent WLA for phenol is based on human health standards and is $3.0 \times 10^7 \mu\text{g/L}$, far higher than the $170 \mu\text{g/L}$ limits based on ELGs.

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WQC-WLA SPREADSHEET INPUT – 0.50 MGD

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name:
Mohawk Industries, Inc. 0.50 mgd
Receiving Stream:
Maury River

Permit No.: VA0004677
Date: 11/6/2014

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information	Stream Flows	Mixing Information	Effluent Information
Mean Hardness (as CaCO ₃) = 116 mg/L	1Q10 (Annual) = 45.7 MGD	Annual - 1Q10 Flow = 61.56 %	Mean Hardness (as CaCO ₃) = 178 mg/L
90% Temperature (Annual) = 25.8 deg C	7Q10 (Annual) = 51.6 MGD	- 7Q10 Flow = 100 %	90% Temp (Annual) = 25 deg C
90% Temperature (Wet season) = 16.9 deg C	30Q10 (Annual) = 58.2 MGD	- 30Q10 Flow = 100 %	90% Temp (Wet season) = 23 deg C
90% Maximum pH = 8.5 SU	1Q10 (Wet season) = 82.4 MGD	Wet Season - 1Q10 Flow = 100 %	90% Maximum pH = 7.4 SU
10% Maximum pH = 7.8 SU	30Q10 (Wet season) = 122 MGD	- 30Q10 Flow = 100 %	10% Maximum pH = 6.9 SU
Tier Designation = 2	30Q5 = 68.2 MGD		1992 Discharge Flow = 0.50 MGD
Public Water Supply (PWS) Y/N? = N	Harmonic Mean = 201 MGD		Discharge Flow for Limit Analysis = 0.50 MGD
V(alley) or P(iedmont)? = V			
Trout Present Y/N? = N			
Early Life Stages Present Y/N? = Y			

Footnotes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
- All flow values are expressed as Million Gallons per Day (MGD).
- Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
- Hardness expressed as mg/l CaCO₃. Standards calculated using Hardness values in the range of 25-400 mg/l CaCO₃.
- "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
- Carcinogen "Y" indicates carcinogenic parameter.
- Ammonia WQOs selected from separate tables, based on pH and temperature.
- Metals measured as Dissolved, unless specified otherwise.
- WLA = Waste Load Allocation (based on standards).
- WLA = Waste Load Allocation (based on standards).
- WLAs are based on mass balances (less background, if data exist).
- Acute - 1 hour avg. concentration not to be exceeded more than 1/3 years.
- Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/3 years.
- Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
- Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC-WLA SPREADSHEET OUTPUT

Facility Name:	Permit No.:	WATER QUALITY CRITERIA				NON-ANTIDEGRADATION		
Mohawk Industries, Inc. 0.50 mgd	VA0004677	0.500 MGD Discharge Flow - Mix per "Mixer"				WASTE LOAD ALLOCATIONS		
Receiving Stream:	Date:	Human Health				0.500 MGD Discharge - Mix per "Mixer"		
Maury River	11/6/2014	Aquatic Protection		Public Water	Other Surface	Aquatic Protection		Human
Toxic Parameter and Form	Carcinogen?	Acute	Chronic	Supplies	Waters	Acute	Chronic	Health
Chlorine, Total Residual	N	1.9E-02 mg/L	1.1E-02 mg/L	None	None	1.1E+00 mg/L	1.1E+00 mg/L	N/A
Copper	N	1.6E+01	1.0E+01	1.3E+03	None	8.9E+02	1.1E+03	N/A
DDD	Y	None	None	3.1E-03	3.1E-03	N/A	N/A	1.2E+00

WQC-WLA SPREADSHEET OUTPUT – Ammonia-N only

Facility Name:	Permit No.:	WATER QUALITY CRITERIA									
Mohawk Industries, Inc. 0.50 mgd	VA0004677	0.500 MGD Discharge Flow - 100% Stream Mix									
Receiving Stream:	Date:	Human Health				INSTREAM BASELINES					
Maury River	11/6/2014	97th Percentiles of Effluent Concentrations			Expected Value of Upstream Data	Current Downstream Mix Concentrations			Aquatic Protection		
Toxic Parameter and Form	Carcinogen?	Daily	4-Day	30-Day		Acute	Chronic	H-Health	Acute	Chronic	H-Health
Ammonia-N (Annual)	N	16	0	8	0	0.171	0.067	0.057	3.5E+00 mg/L	5.6E-01 mg/L	None

Facility Name:	ANTIDEGRADATION				WATER QUALITY CRITERIA				NON-ANTIDEGRADATION				MOST RESTRICTIVE			
Mohawk Industries, Inc. 0.50 mgd	WASTE LOAD ALLOCATIONS				0.500 MGD Discharge Flow - Mix per "Mixer"				WASTE LOAD ALLOCATIONS				WASTE LOAD ALLOCATIONS			
Receiving Stream:	0.500 MGD Discharge - 100% Stream Mix				Human Health				0.500 MGD Discharge - Mix per "Mixer"				0.500 MGD Discharge Flow			
Maury River	Aquatic Protection		Human Health		Aquatic Protection		Public Water	Other Surface	Aquatic Protection		Human Health	Target Level	Aquatic Protection		Human Health	
Toxic Parameter and Form	Acute	Chronic	Health		Acute	Chronic	Supplies	Waters	Acute	Chronic	Health		Acute	Chronic	Health	
Ammonia-N (Annual)	9.4E+01 mg/L	2.2E+01 mg/L	N/A		3.7E+00 mg/L	5.6E-01 mg/L	None	None	2.1E+02 mg/L	6.6E+01 mg/L	N/A	N/A	9.4E+01 mg/L	2.2E+01 mg/L	N/A	

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WQC-WLA SPREADSHEET INPUT – 2.0 MGD

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name:
Mohawk Industries, Inc. 2.0 mgd
Receiving Stream:
Maury River

Permit No.: VA0004677
Date: 11/6/2014

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information	Stream Flows	Mixing Information	Effluent Information
Mean Hardness (as CaCO ₃) = 116 mg/L	1Q10 (Annual) = 45.7 MGD	Annual - 1Q10 Flow = 69.1 %	Mean Hardness (as CaCO ₃) = 178 mg/L
90% Temperature (Annual) = 25.8 deg C	7Q10 (Annual) = 51.6 MGD	- 7Q10 Flow = 100 %	90% Temp (Annual) = 25 deg C
90% Temperature (Wet season) = 16.9 deg C	30Q10 (Annual) = 58.2 MGD	- 30Q10 Flow = 100 %	90% Temp (Wet season) = 23 deg C
90% Maximum pH = 8.5 SU	1Q10 (Wet season) = 82.4 MGD	Wet Season - 1Q10 Flow = 38.3 %	90% Maximum pH = 7.4 SU
10% Maximum pH = 7.8 SU	30Q10 (Wet season) = 122 MGD	- 30Q10 Flow = 100 %	10% Maximum pH = 6.9 SU
Tier Designation = 2	30Q5 = 68.2 MGD		1992 Discharge Flow = 2.0 MGD
Public Water Supply (PWS) Y/N? = N	Harmonic Mean = 201 MGD		Discharge Flow for Limit Analysis = 2.0 MGD
V(alley) or P(iedmont)? = V			
Trout Present Y/N? = N			
Early Life Stages Present Y/N? = Y			

Footnotes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
- All flow values are expressed as Million Gallons per Day (MGD).
- Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
- Hardness expressed as mg/l CaCO₃. Standards calculated using Hardness values in the range of 25-400 mg/l CaCO₃.
- "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
- Carcinogen "Y" indicates carcinogenic parameter.
- Ammonia WQOs selected from separate tables, based on pH and temperature.
- Metals measured as Dissolved, unless specified otherwise.
- WLA = Waste Load Allocation (based on standards).
- WLA = Waste Load Allocation (based on standards).
- WLAs are based on mass balances (less background, if data exist).
- Acute - 1 hour avg. concentration not to be exceeded more than 1/3 years.
- Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/3 years.
- Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
- Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC-WLA SPREADSHEET OUTPUT – Tier 1 Parameters

Facility Name:		Permit No.:		WATER QUALITY CRITERIA				NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS			
Mohawk Industries, Inc. 2.0 mgd		VA0004677		2.000 MGD Discharge Flow - Mix per "Mixer"				2.000 MGD Discharge - Mix per "Mixer"			
Toxic Parameter and Form	Carcinogen?	Aquatic Protection		Human Health		Aquatic Protection		Human Health		Aquatic Protection	
		Acute	Chronic	Supplies	Waters	Acute	Chronic	Supplies	Waters	Acute	Chronic
		mg/L	mg/L			mg/L	mg/L			mg/L	mg/L
Ammonia-N (Annual)	N	5.0E+00	6.7E-01	None	None	8.4E+01	2.0E+01	None	None	N/A	N/A
Chlorine, Total Residual	N	1.9E-02	1.1E-02	None	None	3.2E-01	2.9E-01	None	None	N/A	N/A
Copper	N	1.6E+01	1.0E+01	1.3E+03	None	2.7E+02	2.8E+02	None	None	N/A	N/A
DDD	Y	None	None	3.1E-03	3.1E-03	N/A	N/A	None	None	3.1E-01	3.1E-01
Phenol	N	None	None	1.0E+04	8.6E+05	N/A	N/A	None	None	3.0E+07	3.0E+07

WQC-WLA SPREADSHEET OUTPUT – (Ammonia-N only)

Facility Name:		Permit No.:		WATER QUALITY CRITERIA											
Mohawk Industries, Inc. 2.0 mgd		VA0004677		2.000 MGD Discharge Flow - 100%StreamMix											
Receiving Stream:		Date:													
Maury River		11/6/2014													
Toxic Parameter and Form	Carcinogen?	97th Percentiles of Effluent Concentrations			Expected Value of Upstream Data	Current Downstream Mix Concentrations			Aquatic Protection		Human Health		INSTREAM BASELINES		
		Daily	4-Day	30-Day		Acute	Chronic	H-Health	Acute	Chronic	Public Water	Other Surface	Acute	Chronic	H-Health
											Supplies	Waters			
Ammonia-N (Annual)	N	8.98	0.00	4.45	0	0.377	0.148	0.127	4.5E+00 mg/L	6.7E-01 mg/L	None	None	1.4E+00 mg/L	2.8E-01 mg/L	None

Facility Name:		Permit No.:		ANTIDEGRADATION WASTE LOAD ALLOCATIONS				WATER QUALITY CRITERIA				NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS				MOST RESTRICTIVE WASTE LOAD ALLOCATIONS			
Mohawk Industries, Inc. 2.0 mgd		VA0004677		2.000 MGD Discharge - 100%StreamMix				2.000 MGD Discharge Flow - Mix per "Mixer"				2.000 MGD Discharge - Mix per "Mixer"				2.000 MGD Discharge Flow			
Toxic Parameter and Form	Carcinogen?	Aquatic Protection		Human Health		Aquatic Protection		Human Health		Aquatic Protection		Human Health		Aquatic Protection		Human Health		Aquatic Protection	
		Acute	Chronic	Supplies	Waters	Acute	Chronic	Supplies	Waters	Acute	Chronic	Supplies	Waters	Acute	Chronic	Supplies	Waters	Acute	Chronic
		mg/L	mg/L			mg/L	mg/L			mg/L	mg/L			mg/L	mg/L			mg/L	mg/L
Ammonia-N (Annual)	N	3.3E+01	8.4E+00	None	None	5.0E+00	6.7E-01	None	None	8.4E+01	2.0E+01	None	None	3.3E+01	8.4E+00	None	None	3.3E+01	8.4E+00

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WQC-WLA SPREADSHEET INPUT – OUTFALL 007

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name:
Mohawk Industries, Inc. Outfall 007

Receiving Stream:
Maury River

Permit No.: VA0004677
Date: 11/12/2014

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information	Stream Flows	Mixing Information	Effluent Information
Mean Hardness (as CaCO ₃) =	1Q10 (Annual) = 45.7 MGD	Annual - 1Q10 Flow = 61.29 %	Mean Hardness (as CaCO ₃) =
90% Temperature (Annual) =	7Q10 (Annual) = 51.6 MGD	- 7Q10 Flow = 100 %	90% Temp (Annual) =
90% Temperature (Wet season) =	30Q10 (Annual) = 58.2 MGD	- 30Q10 Flow = 100 %	90% Temp (Wet season) =
90% Maximum pH =	1Q10 (Wet season) = 82.4 MGD	Wet Season - 1Q10 Flow = 100 %	90% Maximum pH =
10% Maximum pH =	30Q10 (Wet season) = 122 MGD	- 30Q10 Flow = 100 %	10% Maximum pH =
Tier Designation =	30Q5 = 68.2 MGD		1992 Discharge Flow = 0.28 MGD
Public Water Supply (PWS) Y/N? =	Harmonic Mean = 201 MGD		Discharge Flow for Limit Analysis = 0.28 MGD
V(alley) or P(iedmont)? =			
Trout Present Y/N? =			
Early Life Stages Present Y/N? =			

WQC-WLA SPREADSHEET OUTPUT – OUTFALL 007

Facility Name:	Permit No.:	WATER QUALITY CRITERIA				NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS		
Mohawk Industries, Inc. Outfall 007	VA0004677	0.280 MGD Discharge Flow - Mix per "Mixer"				0.280 MGD Discharge - Mix per "Mixer"		
Receiving Stream:	Date:	Aquatic Protection		Human Health		Aquatic Protection		Human Health
Maury River	11/12/2014	Acute	Chronic	Public Water Supplies	Other Surface Waters	Acute	Chronic	Health
Toxic Parameter and Form	Carcinogen?	1.9E-02 mg/L	1.1E-02 mg/L	None	None	1.9E+00 mg/L	2.0E+00 mg/L	N/A
Chlorine, Total Residual	N							

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PROTOCOL FOR THE EVALUATION OF THE EFFLUENT – TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with Guidance Memo No. 00-2011. Acute and Chronic WLAs (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh} , the WLA_{hh} was imposed as the limit. Since there are no data available for any toxic pollutants immediately upstream of this discharge, all upstream (background) pollutant concentrations are assumed to be "0".

The steps used in evaluating the effluent data are as follows:

- A. If all data are reported as "below detection" or $<$ the required Quantification Level (QL), and at least one detection level is \leq the required QL, then the pollutant is considered to be not significantly present in the discharge and no further monitoring is required.
- B. If all data are reported as "below detection", and all detection levels are $>$ the required QL, then an evaluation is performed in which the pollutant is assumed present at the lowest reported detection level.
 - B.1. If the evaluation indicates that no limits are needed, then the existing data set is adequate and no further monitoring is required.
 - B.2. If the evaluation indicates that limits are needed, then the existing data set is inadequate to make a determination and additional monitoring is required.
- C. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.
 - C.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.
 - C.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.
 - C.3. (Exception for Metals data only) If the evaluation indicates that limits are needed, but the data are reported as a form other than "Dissolved" (except for Selenium), then the existing data set is inadequate to make a determination and additional monitoring is required.

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Outfall 001

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval		
					0.50 mgd	1.1 mgd	2.0 mgd
METALS							
Antimony, dissolved	7440-36-0	0.2	Previously evaluated. No further monitoring required.	---	---	---	---
Arsenic, dissolved	7440-38-2	1.0	Previously evaluated. No further monitoring required.	---	---	---	---
Barium, dissolved	7440-39-3	---	Applicable to PWS waters only	---	---	---	---
Cadmium, dissolved	7440-43-9	0.3	Previously evaluated. No further monitoring required.	---	---	---	---
Chromium III, dissolved	16065-83-1	0.5	Previously evaluated. No further monitoring required.	---	---	---	---
Chromium VI, dissolved	18540-29-9	0.5	Previously evaluated. No further monitoring required.	---	---	---	---
Chromium, Total	7440-47-3	---	Applicable to PWS waters only	---	---	---	---
Copper, dissolved	7440-50-8	0.5	70.5	c	C.1	C.1	C.1
Iron, dissolved	7439-89-6	1.0	Applicable to PWS waters only	---	---	---	---
Lead, dissolved	7439-92-1	0.5	Previously evaluated. No further monitoring required.	---	---	---	---
Manganese, dissolved	7439-96-5	0.2	Applicable to PWS waters only	---	---	---	---
Mercury, dissolved	7439-97-6	1.0	Previously evaluated. No further monitoring required.	---	---	---	---
Nickel, dissolved	7440-02-0	0.5	Previously evaluated. No further monitoring required.	---	---	---	---
Selenium, total recoverable	7782-49-2	2.0	Previously evaluated. No further monitoring required.	---	---	---	---
Silver, dissolved	7440-22-4	0.2	Previously evaluated. No further monitoring required.	---	---	---	---
Thallium, dissolved	7440-28-0	---	Previously evaluated. No further monitoring required.	---	---	---	---
Zinc, dissolved	7440-66-6	2.0	Previously evaluated. No further monitoring required.	---	---	---	---
PESTICIDES/PCBS							
Aldrin ^c	309-00-2	0.05	Previously evaluated. No further monitoring required.	---	---	---	---
Chlordane ^c	57-74-9	0.2	Previously evaluated. No further monitoring required.	---	---	---	---
Chlorpyrifos	2921-88-2	(5)	Previously evaluated. No further monitoring required.	---	---	---	---
DDD ^c	72-54-8	0.1	<0.39	b	B.1	B.1	B.2
DDE ^c	72-55-9	0.1	Previously evaluated. No further monitoring required.	---	---	---	---
DDT ^c	50-29-3	0.1	Previously evaluated. No further monitoring required.	---	---	---	---
Demeton	8065-48-3	---	Previously evaluated. No further monitoring required.	---	---	---	---
Diazinon	333-41-5	---	<8.4	b	A	A	A
Dieldrin ^c	60-57-1	0.1	Previously evaluated. No further monitoring required.	---	---	---	---
Alpha-Endosulfan	959-98-8	0.1	Previously evaluated. No further monitoring required.	---	---	---	---
Beta-Endosulfan	33213-65-9	0.1	Previously evaluated. No further monitoring required.	---	---	---	---
Alpha-Endosulfan + Beta-Endosulfan		---	Previously evaluated. No further monitoring required.	---	---	---	---
Endosulfan Sulfate	1031-07-8	0.1	Previously evaluated. No further monitoring required.	---	---	---	---
Endrin	72-20-8	0.1	Previously evaluated. No further monitoring required.	---	---	---	---
Endrin Aldehyde	7421-93-4	---	Previously evaluated. No further monitoring required.	---	---	---	---
Guthion	86-50-0	---	Previously evaluated. No further monitoring required.	---	---	---	---
Heptachlor ^c	76-44-8	0.05	Previously evaluated. No further monitoring required.	---	---	---	---
Heptachlor Epoxide ^c	1024-57-3	---	Previously evaluated. No further monitoring required.	---	---	---	---
Hexachlorocyclohexane Alpha-BHC ^c	319-84-6	---	Previously evaluated. No further monitoring required.	---	---	---	---
Hexachlorocyclohexane Beta-BHC ^c	319-85-7	---	Previously evaluated. No further monitoring required.	---	---	---	---
Hexachlorocyclohexane Gamma-BHC (synonym = Lindane)	58-89-9	---	Previously evaluated. No further monitoring required.	---	---	---	---
Kepone	143-50-0	---	Previously evaluated. No further monitoring required.	---	---	---	---

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval		
					0.50 mgd	1.1 mgd	2.0 mgd
Malathion	121-75-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
Methoxychlor	72-43-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
Mirex	2385-85-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
Parathion	56-38-2	---	Previously evaluated. No further monitoring required.	---	---	---	---
PCB Total ^C	1336-36-3	7.0	Previously evaluated. No further monitoring required.	---	---	---	---
Toxaphene ^C	8001-35-2	5.0	Previously evaluated. No further monitoring required.	---	---	---	---
BASE NEUTRAL EXTRACTABLES							
Acenaphthene	83-32-9	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Anthracene	120-12-7	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Benzidine ^C	92-87-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
Benzo (a) anthracene ^C	56-55-3	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Benzo (b) fluoranthene ^C	205-99-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Benzo (k) fluoranthene ^C	207-08-9	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Benzo (a) pyrene ^C	50-32-8	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Bis 2-Chloroethyl Ether ^C	111-44-4	---	Previously evaluated. No further monitoring required.	---	---	---	---
Bis 2-Chloroisopropyl Ether	108-60-1	---	Previously evaluated. No further monitoring required.	---	---	---	---
Bis-2-Ethylhexyl Phthalate ^C	117-81-7	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Butyl benzyl phthalate	85-68-7	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
2-Chloronaphthalene	91-58-7	---	Previously evaluated. No further monitoring required.	---	---	---	---
Chrysene ^C	218-01-9	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Dibenz(a,h)anthracene ^C	53-70-3	20.0	Previously evaluated. No further monitoring required.	---	---	---	---
1,2-Dichlorobenzene	95-50-1	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
1,3-Dichlorobenzene	541-73-1	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
1,4-Dichlorobenzene	106-46-7	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
3,3-Dichlorobenzidine ^C	91-94-1	---	Previously evaluated. No further monitoring required.	---	---	---	---
Diethyl phthalate	84-66-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Dimethyl phthalate	131-11-3	---	Previously evaluated. No further monitoring required.	---	---	---	---
Di-n-Butyl Phthalate	84-74-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
2,4-Dinitrotoluene	121-14-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
1,2-Diphenylhydrazine ^C	122-66-7	---	Previously evaluated. No further monitoring required.	---	---	---	---
Fluoranthene	206-44-0	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Fluorene	86-73-7	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Hexachlorobenzene ^C	118-74-1	---	Previously evaluated. No further monitoring required.	---	---	---	---
Hexachlorobutadiene ^C	87-68-3	---	Previously evaluated. No further monitoring required.	---	---	---	---
Hexachlorocyclopentadiene	77-47-4	---	Previously evaluated. No further monitoring required.	---	---	---	---
Hexachloroethane ^C	67-72-1	---	Previously evaluated. No further monitoring required.	---	---	---	---
Indeno(1,2,3-cd)pyrene ^C	193-39-5	20.0	Previously evaluated. No further monitoring required.	---	---	---	---
Isophorone ^C	78-59-1	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Nitrobenzene	98-95-3	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
N-Nitrosodimethylamine ^C	62-75-9	---	Previously evaluated. No further monitoring required.	---	---	---	---
N-Nitrosodi-n-propylamine ^C	621-64-7	---	Previously evaluated. No further monitoring required.	---	---	---	---
N-Nitrosodiphenylamine ^C	86-30-6	---	Previously evaluated. No further monitoring required.	---	---	---	---
Pyrene	129-00-0	10.0	Previously evaluated. No further monitoring required.	---	---	---	---

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval		
					0.50 mgd	1.1 mgd	2.0 mgd
1,2,4-Trichlorobenzene	120-82-1	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
VOLATILES							
Acrolein	107-02-8	---	Previously evaluated. No further monitoring required.	---	---	---	---
Acrylonitrile ^C	107-13-1	---	Previously evaluated. No further monitoring required.	---	---	---	---
Benzene ^C	71-43-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Bromoform ^C	75-25-2	10.0	Needs to be sampled.	---	---	---	---
Carbon Tetrachloride ^C	56-23-5	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Chlorobenzene	108-90-7	50.0	Previously evaluated. No further monitoring required.	---	---	---	---
Chlorodibromomethane ^C	124-48-1	10.0	Needs to be sampled.	---	---	---	---
Chloroform	67-66-3	10.0	Needs to be sampled.	---	---	---	---
Dichlorobromomethane ^C	75-27-4	10.0	Needs to be sampled.	---	---	---	---
1,2-Dichloroethane ^C	107-06-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
1,1-Dichloroethylene	75-35-4	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
1,2-trans-dichloroethylene	156-60-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
1,2-Dichloropropane ^C	78-87-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
1,3-Dichloropropene ^C	542-75-6	---	Previously evaluated. No further monitoring required.	---	---	---	---
Ethylbenzene	100-41-4	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Methyl Bromide	74-83-9	---	Previously evaluated. No further monitoring required.	---	---	---	---
Methylene Chloride ^C	75-09-2	20.0	Previously evaluated. No further monitoring required.	---	---	---	---
1,1,2,2-Tetrachloroethane ^C	79-34-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
Tetrachloroethylene	127-18-4	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Toluene	10-88-3	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
1,1,2-Trichloroethane ^C	79-00-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
Trichloroethylene ^C	79-01-6	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
Vinyl Chloride ^C	75-01-4	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
RADIONUCLIDES							
Beta Particle & Photon Activity (mrem/yr)	N/A	---	Applicable to PWS waters only	---	---	---	---
Combined Radium 226 and 228 (pCi/L)	N/A	---	Applicable to PWS waters only	---	---	---	---
Gross Alpha Particle Activity (pCi/L)	N/A	---	Applicable to PWS waters only	---	---	---	---
Uranium	N/A	---	Applicable to PWS waters only	---	---	---	---
ACID EXTRACTABLES							
2-Chlorophenol	95-57-8	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
2,4-Dichlorophenol	120-83-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
2,4-Dimethylphenol	105-67-9	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
2,4-Dinitrophenol	51-28-5	---	Previously evaluated. No further monitoring required.	---	---	---	---
2-Methyl-4,6-Dinitrophenol	534-52-1	---	Previously evaluated. No further monitoring required.	---	---	---	---
Nonylphenol	104-40-51	---	<8.4	b	A	A	A
Pentachlorophenol ^C	87-86-5	50.0	Previously evaluated. No further monitoring required.	---	---	---	---
Phenol	108-95-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---
2,4,6-Trichlorophenol ^C	88-06-2	10.0	Previously evaluated. No further monitoring required.	---	---	---	---

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval			
					0.50 mgd	1.1 mgd	2.0 mgd	
MISCELLANEOUS								
Ammonia-N (mg/L) (Annual)	766-41-7	0.2 mg/L	<0.1, 0.14, 0.86, 0.51, 0.2, <0.1, <0.1, 0.24, <0.1, 4.3, <0.1, <0.1, <0.1, <0.1, <0.1, <0.1, <0.1	d	C.1	C.1	C.1	
Chloride (mg/L)	16887-00-6	---	Previously evaluated. No further monitoring required.	---	---	---	---	
TRC (mg/L)	7782-50-5	0.1 mg/L	Default = 20 mg/L	a	C.2	C.2	C.2	
Cyanide, Free	57-12-5	10.0	Previously evaluated. No further monitoring required.	---	---	---	---	
2,4-Dichlorophenoxy acetic acid (synonym = 2,4-D)	94-75-7	---	Applicable to PWS waters only	---	---	---	---	
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin)(ppq)	1746-01-6	0.01	Applicable to Paper Mills & Oil Refineries only	---	---	---	---	
Foaming Agents (as MBAS)	N/A	---	Applicable to PWS waters only	---	---	---	---	
Sulfide, dissolved	18496-25-8	100	NEW REQUIREMENT. Needs to be sampled.	---	---	---	---	
Nitrate as N (mg/L)	14797-55-8	---	Applicable to PWS waters only	---	---	---	---	
Sulfate (mg/L)	N/A	---	Applicable to PWS waters only	---	---	---	---	
Total Dissolved Solids (mg/L)	N/A	---	Applicable to PWS waters only	---	---	---	---	
Tributyltin	60-10-5	---	Previously evaluated. No further monitoring required.	---	---	---	---	
2-(2,4,5-Trichlorophenoxy) propionic acid (synonym = Silvex)	93-72-1	---	Applicable to PWS waters only	---	---	---	---	
Hardness (mg/L as CaCO ₃)	471-34-1	---	151, 200, 191, 165	e	---	---	---	

Outfall 007

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
MISCELLANEOUS					
TRC (mg/L)	7782-50-5	0.1 mg/L	20 mg/L	a	C.2

The **superscript "C"** following the parameter name indicates that the substance is a known or suspected carcinogen; human health criteria at risk level 10⁻⁵.

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

"Source of Data" codes:

a = default effluent concentration
b = data from permittee monitoring, Attachment A
c = data from permittee monitoring, Form 2C
d = data from permittee monitoring, DMRs, previous permit term
e = data from annual WET tests

"Data Evaluation" codes:

See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

STAT.EXE RESULTS

<p><u>Ammonia-N (Annual), 2.0 MGD - Outfall 001</u> Chronic averaging period = 30 WLAa = 33 WLAc = 8.4 Q.L. = 0.2 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 18 Expected Value = .168829 Variance = .010261 C.V. = 0.6 97th percentile daily values = .410832 97th percentile 4 day average = .280896 97th percentile 30 day average= .203617 # < Q.L. = 13 Model used = BPJ Assumptions, Type 1 data</p> <p>No Limit is required for this material</p> <p>The data are: 0.1, 0.14, 0.86, 0.51, 0.2, 0.1, 0.1, 0.24, 0.1, 4.3, 0.1, 0.1, 0.1, 0.1, 0.1, 0.1, 0.1, 0.1, 0.1</p>	<p><u>Copper, 2.0 MGD – Outfall 001</u> Chronic averaging period = 4 WLAa = 270 WLAc = 280 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 70.5 Variance = 1789.29 C.V. = 0.6 97th percentile daily values = 171.555 97th percentile 4 day average = 117.297 97th percentile 30 day average= 85.0267 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 70.5</p>	
<p><u>TRC, 2.0 MGD – Outfall 001</u> Chronic averaging period = 4 WLAa = 0.32 WLAc = 0.29 Q.L. = 0.1 # samples/mo. = 4 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Acute Toxicity Maximum Daily Limit = 0.32 Average Weekly limit = 0.32 Average Monthly Limit = 0.218792230994975</p> <p>The data are: 20</p>	<p><u>TRC, 1.1 MGD – Outfall 001</u> Chronic averaging period = 4 WLAa = 0.36 WLAc = 0.53 Q.L. = 0.1 # samples/mo. = 4 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Acute Toxicity Maximum Daily Limit = 0.36 Average Weekly limit = 0.36 Average Monthly Limit = 0.246141259869347</p> <p>The data are: 20</p>	<p><u>TRC, 0.50 MGD – Outfall 001</u> Chronic averaging period = 4 WLAa = 1.1 WLAc = 1.1 Q.L. = 0.1 # samples/mo. = 4 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Acute Toxicity Maximum Daily Limit = 1.1 Average Weekly limit = 1.1 Average Monthly Limit = 0.752098294045226</p> <p>The data are: 20</p>

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TRC - Outfall 007

Chronic averaging period = 4

WLA_A = 1.9

WLA_C = 2

Q.L. = 0.1

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 20

Variance = 144

C.V. = 0.6

97th percentile daily values = 48.6683

97th percentile 4 day average = 33.2758

97th percentile 30 day average = 24.1210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 1.9

Average Weekly limit = 1.9

Average Monthly Limit = 1.9

The data are: 20

WHOLE EFFLUENT TOXICITY (WET) EVALUATION – Outfall 001, 0.50 MGD FLOW TIER:

Applicability of TMP: The applicability criteria for a facility to perform toxicity testing is contained in the Departments Guidance Memo No. 00-2012, Toxics Management Program Implementation Guidance, 08/24/00, Part IV. The Standard Industrial Code (SIC) codes (2273, 2269) for Mohawk Industries, Inc. are included in Appendix A of the TMP Guidance. In addition, the discharge has shown potential for toxicity based upon effluent data (GM 00-2012, Sections IV.1.C).

Summary of Toxicity Testing: The previous permit required annual acute testing using *Ceriodaphnia dubia*. Table 1 contains a summary of the toxicity testing results during the term of the permit. These data were evaluated using the procedures outlined in the TMP guidance.

Rationale for Acute versus Chronic Toxicity Testing: At this flow tier, the IWC_c is <1%, therefore only acute testing will be required in the reissued permit.

Criteria for Acute Toxicity Testing: The IWC_a is ≤ 33% so the tests are based on the calculation of a valid LC₅₀.

Rationale for Most Sensitive Species: The more sensitive species was previously determined to be *Ceriodaphnia dubia*; therefore, toxicity testing for all flow tiers includes only that species.

Sample Type: A sample type of 24 hour composite is representative of the discharge.

Calculation of WLAs: Acute WLAs were generated from the WETLimit10.xls spreadsheet (Table 2) by entering the design flow, stream flows, and stream mix percentages for the respective stream flows.

Dilution Series: The recommended dilution series is the standard 0.5 series.

Stat.exe Limit Evaluation: The WLAs are used in the Department's Stat.exe program in order to perform a statistical evaluation of the acute test results expressed as Toxicity Units (TUs). The toxicity data are analyzed separately by species and test type (acute or chronic). The summary of the acute toxicity testing data are shown in Table 1. The results of the Stat.exe evaluation are shown in Table 3. Based on the evaluation of the toxicity data, a WET Limit is not required at this time.

Outfall 001, 1.1 & 2.0 MGD FLOW TIERS:

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

Summary of Toxicity Testing: The previous permit required quarterly chronic testing using *Ceriodaphnia dubia* in the third month following the applicability of permit requirements for either flow tier. Since the facility did not operate under these flow tiers in the previous permit term, no chronic tests were performed and no data is available; however, chronic WET limits included at the previous reissuance have been carried forward based on antibacksliding.

Rationale for Acute versus Chronic Toxicity Testing: The previous permit required chronic toxicity testing only for these flow tiers. This has been carried forward and no acute toxicity testing is required in the reissued permit; however, the permit contains language that should chronic WET monitoring result in a 48-hour $LC_{50} \leq 100\%$ effluent, the permittee must commence acute toxicity testing.

Criteria for Acute Toxicity Testing: Since the IWCa is $\leq 33\%$, if acute toxicity tests become necessary the acute toxicity criteria is LC_{50} .

Rationale for Most Sensitive Species: The more sensitive species was previously determined to be *Ceriodaphnia dubia*. Therefore, toxicity testing includes only that species.

Sample Type: A sample type of 24 hour composite is representative of the discharge.

Calculation of WLAs: Acute and chronic WLAs were generated from the WETLimit10.xls spreadsheet by entering the design flow, stream flows, and stream mix percentages for the respective stream flows.

Dilution Series: The dilution series is at the discretion of the permittee; however, the NOEC limit of 2% ($TU_c = 50$) at the 1.1 MGD flow tier, or of 3% ($TU_c = 33$) at the 2.0 MGD flow tier, must be represented by a dilution. Should acute tests become necessary, the recommended dilution series is the standard 0.5 series.

Stat.exe Limit Evaluation: The WLAs are used in the Department's Stat.exe program in order to perform a statistical evaluation of the acute and chronic test results expressed as Toxicity Units (TUs). The toxicity data are analyzed separately by species and test type (acute or chronic). Since no new chronic WET data are available and stream data has not changed significantly, no analysis has been done and the previous limits are carried forward. Because the permit contains a WET limit, a midpoint check is not necessary.

Outfalls 003, 005, 006, 007, 008, & 009: Based the nature of the discharges at these outfalls, toxics monitoring was not required in the previous permit or in the reissued permit.

Peer Reviewer: Bev Carver

Date: November 5, 2014

Table 1
Summary of Acute Toxicity Testing LC_{50}

Monitoring Period	Test Start Date	48-Hr. Static Acute <i>Ceriodaphnia dubia</i> TUa	48-Hr. Static Acute <i>Ceriodaphnia dubia</i> % Survival in 100% Effluent
1 st Annual	8/2/10	<1.0	100%
2 nd Annual	8/3/11	<1.0	100%
3 rd Annual	8/15/12	<1.0	90%
4 th Annual	8/14/13	<1.0	100%
5 th Annual	8/13/14	<1.0	75%

Table 2
Outfall 001 – 0.50 MGD

Fact Sheet – VPDES Permit No. VA0004677 – Mohawk Industries, Inc.

Spreadsheet for determination of WET test endpoints or WET limits																																																								
Excel 97 Revision Date: 12/13/13 File: WETLIM10.xls (MIX.EXE required also)			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: left; padding: 2px;">Acute Endpoint/Permit Limit</th> <th colspan="4" style="text-align: left; padding: 2px;">Use as LC₅₀ in Special Condition, as TU_a on DMR</th> </tr> <tr> <td style="padding: 2px;">ACUTE</td> <td style="padding: 2px;">15.2400282</td> <td style="padding: 2px;">TU_a</td> <td style="padding: 2px;">LC₅₀ =</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;">% Use as</td> <td style="padding: 2px;">14.28</td> <td style="padding: 2px;">TU_a</td> </tr> <tr> <td style="padding: 2px;">ACUTE WLA_a</td> <td style="padding: 2px;">27.72</td> <td colspan="6" style="padding: 2px;"> Note: Inform the permittee that if the mean of the data exceeds this TU_a: 4.28204214 a limit may result using STATS.EXE </td> </tr> </table>							Acute Endpoint/Permit Limit			Use as LC ₅₀ in Special Condition, as TU _a on DMR				ACUTE	15.2400282	TU _a	LC ₅₀ =	7	% Use as	14.28	TU _a	ACUTE WLA_a	27.72	Note: Inform the permittee that if the mean of the data exceeds this TU _a : 4.28204214 a limit may result using STATS.EXE																													
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Enter data in the cells with blue type: Entry Date: 10/23/14 Facility Name: Mohawk Industries, Inc. VPDES Number: VA0004677 Outfall Number: 1 Plant Flow: 0.5 MGD Acute 1Q10: 45.7 MGD Chronic 7Q10: 51.6 MGD			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: left; padding: 2px;">Chronic Endpoint/Permit Limit</th> <th colspan="4" style="text-align: left; padding: 2px;">Use as NOEC in Special Condition, as TU_c on DMR</th> </tr> <tr> <td style="padding: 2px;">CHRONIC</td> <td style="padding: 2px;">152.400282</td> <td style="padding: 2px;">TU_c</td> <td style="padding: 2px;">NOEC =</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">% Use as</td> <td style="padding: 2px;">100.00</td> <td style="padding: 2px;">TU_c</td> </tr> <tr> <td style="padding: 2px;">BOTH*</td> <td style="padding: 2px;">277.200007</td> <td style="padding: 2px;">TU_c</td> <td style="padding: 2px;">NOEC =</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">% Use as</td> <td style="padding: 2px;">100.00</td> <td style="padding: 2px;">TU_c</td> </tr> <tr> <td style="padding: 2px;">AML</td> <td style="padding: 2px;">152.400282</td> <td style="padding: 2px;">TU_c</td> <td style="padding: 2px;">NOEC =</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">% Use as</td> <td style="padding: 2px;">100.00</td> <td style="padding: 2px;">TU_c</td> </tr> <tr> <td style="padding: 2px;">ACUTE WLA_{a,c}</td> <td style="padding: 2px;">277.2</td> <td colspan="6" style="padding: 2px;"> Note: Inform the permittee that if the mean of the data exceeds this TU_c: 62.628084 a limit may result using STATS.EXE </td> </tr> <tr> <td style="padding: 2px;">CHRONIC WLA_c</td> <td style="padding: 2px;">104.2</td> <td colspan="6" style="padding: 2px;">* Both means acute expressed as chronic</td> </tr> </table>							Chronic Endpoint/Permit Limit			Use as NOEC in Special Condition, as TU _c on DMR				CHRONIC	152.400282	TU _c	NOEC =	1	% Use as	100.00	TU _c	BOTH*	277.200007	TU _c	NOEC =	1	% Use as	100.00	TU _c	AML	152.400282	TU _c	NOEC =	1	% Use as	100.00	TU _c	ACUTE WLA_{a,c}	277.2	Note: Inform the permittee that if the mean of the data exceeds this TU _c : 62.628084 a limit may result using STATS.EXE						CHRONIC WLA_c	104.2	* Both means acute expressed as chronic					
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% Flow to be used from MIX.EXE Acute 1Q10: 100 % Chronic 7Q10: 100 %			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Diffuser /modeling study?</th> </tr> <tr> <td style="padding: 2px;">Enter Y/N</td> <td style="padding: 2px;">n</td> </tr> <tr> <td style="padding: 2px;">Acute</td> <td style="padding: 2px;">1 :1</td> </tr> <tr> <td style="padding: 2px;">Chronic</td> <td style="padding: 2px;">1 :1</td> </tr> </table>							Diffuser /modeling study?		Enter Y/N	n	Acute	1 :1	Chronic	1 :1																																							
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Are data available to calculate CV? (Y/N) N Are data available to calculate ACR? (Y/N) N			(Minimum of 10 data points, same species, needed) (NOEC<LC50, do not use greater/less than data)				Go to Page 2 Go to Page 3																																																	
IWC _a : 1.082251082 % IWC _c : 0.959692898 %			Plant flow/plant flow + 1Q10 Plant flow/plant flow + 7Q10		<div style="border: 2px solid red; padding: 5px;"> NOTE: If the IWC_a is >33%, specify the NOAEC = 100% test/endpoint for use </div>																																																			
Dilution, acute: 92.4 Dilution, chronic: 104.2			100/IWC _a 100/IWC _c		WLA _a : 27.72 WLA _c : 104.2 WLA _{a,c} : 277.2																																																			
ACR -acute/chronic ratio: 10 CV-Coefficient of variation: 0.6			LC50/NOEC (Default is 10 - if data are available, use tables Page 3) Default of 0.6 - if data are available, use tables Page 2)																																																					
Constants eA: 0.4109447 eB: 0.6010373 eC: 2.4334175 eD: 2.4334175			Default = 0.41 Default = 0.60 Default = 2.43 Default = 2.43 (1 samp)																																																					
LTA _{a,c} : 113.9138708 LTA _c : 62.62808666			WLA _{a,c} X's eA WLA _c X's eB		**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTA _{a,c} and MDL using it are driven by the ACR.																																																			
MDL** with LTA _{a,c} : 277.2000068 MDL** with LTA _c : 152.4002821 AML with lowest LTA: 152.4002821			TU _c TU _c TU _c		NOEC = NOEC = NOEC =		0.360750 0.656167 0.656167																																																	
IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU _c to TU _a			(Protects from acute/chronic toxicity) (Protects from chronic toxicity) Lowest LTA X's eD		Rounded NOEC's % NOEC = 1 % NOEC = 1 % NOEC = 1																																																			
MDL with LTA _{a,c} : 27.72000068 MDL with LTA _c : 15.24002821			TU _a TU _a		LC50 = LC50 =		3.607504 % 6.561668 %																																																	
Rounded LC50's % LC50 = 4 % LC50 = 7			% % %																																																					

Table 3
Stat.exe Results

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Chemical = WET - Acute - C. dubia

Chronic averaging period = 4

WLAa = 27.72

WLAc = NA

Q.L. = 1.0

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 5

Expected Value = 1

Variance = .36

C.V. = 0.6

97th percentile daily values = 2.43341

97th percentile 4 day average = 1.66379

97th percentile 30 day average= 1.20605

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1

1

1

1

1

APPENDIX C

BASES FOR PERMIT SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page	Content and format as prescribed by the Guidance Memo No. 14-2003.
Part I.A.1.	<p>Effluent Limitations and Monitoring Requirements – 0.50 MGD Flow Tier, Outfall 001: Bases for effluent limits and monitoring requirements provided in previous pages of fact sheet.</p> <p><i>Updates Part I.A.1. of the previous permit with the following:</i></p> <ul style="list-style-type: none">• Slight changes were made to the format and introductory language.• Limits for BOD₅, TSS, COD, total chromium, total phenols, and total sulfide have been revised based on recent production.• The monitoring frequency for E. coli was changed from 2/Month to 4/Month in any month of each calendar quarter.• Ammonia-N limits (Jun-Nov) were removed.• Footnote for compliance schedule was removed as it no longer applies.
Part I.A.2.	<p>Effluent Limitations and Monitoring Requirements – 1.1 MGD Flow Tier, Outfall 001: Bases for effluent limits and monitoring requirements provided in previous pages of fact sheet.</p> <p><i>Updates Part I.A.2. of the previous permit with the following:</i></p> <ul style="list-style-type: none">• Slight changes were made to the format and introductory language.• Limits for BOD₅, TSS, COD, total chromium, total phenols, and total sulfide have been revised based on recent production.• The monitoring frequency for E. coli was changed from 2/Month to 4/Month in any month of each calendar quarter.• Ammonia-N limits (Jun-Nov and Dec-May) were removed.• Footnote for compliance schedule was removed as it no longer applies.
Part I.A.3.	<p>Effluent Limitations and Monitoring Requirements – 2.0 MGD Flow Tier, Outfall 001: Bases for effluent limits and monitoring requirements provided in previous pages of fact sheet.</p> <p><i>Updates Part I.A.3. of the previous permit with the following:</i></p> <ul style="list-style-type: none">• Slight changes were made to the format and introductory language.• Limits for BOD₅, TSS, COD, total chromium, total phenols, and total sulfide have been revised based on recent production.• The monitoring frequency for E. coli was changed from 2/Month to 4/Month in any month of each calendar quarter.• The daily maximum chlorine limit was increased slightly based on new flow information.• Ammonia-N limits were removed.• Footnote for compliance schedule was removed as it no longer applies.
Part I.A.4.	<p>Effluent Limitations and Monitoring Requirements – Outfalls 002, 003, 005, 006, 008, & 009: <i>Identical to Part I.A.4 of the previous permit.</i></p>

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- Part I.A.5. **Effluent Limitations and Monitoring Requirements – Outfall 007:** Bases for effluent limits provided in previous pages of this fact sheet. Monitoring requirements as prescribed by GM 14-2003. *Updates Part I.A.5 of the previous permit with the following:*
- More stringent TRC limits were included.
 - Footnote “a” was updated to reflect changes to the permit.
- Part I.A.6. **Effluent Limitations and Monitoring Requirements – Outfall 104:** Bases for effluent limits provided in previous pages of this fact sheet. Monitoring requirements as prescribed by GM 14-2003. *Identical to Part I.A.6 of the previous permit except for update to footnote “a”.*
- Part I.A.7. **Effluent Limitations and Monitoring Requirements – Outfalls 701:** Bases for effluent limits provided in previous pages of this fact sheet. Monitoring requirements as prescribed by GM 14-2003. *Updates Part I.A.7 of the previous permit with the following:*
- The reference to Outfall 907 was removed.
 - Footnote “d” was added.
- Part I.A.8. **Stormwater Monitoring Requirements – Outfall 902 & 907:** Bases for effluent limits provided in previous pages of this fact sheet. Monitoring requirements as prescribed by the VPDES Permit Manual. *New requirement.* Nonsignificant dischargers are subject to aggregate WLAs for TN, TP and sediments under the TMDL for the Chesapeake Bay. Monitoring of TN and TP is required in order to verify the aggregate WLAs.
- Part I.B. **Additional Total Residual Chlorine (TRC) Effluent Limitations and Monitoring Requirements:** *Updates Part I.C. of the previous permit with minor wording changes.* Required by Sewage Collection and Treatment (SCAT) Regulations, 9VAC25-790 and Water Quality Standards, 9VAC25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.
- Part I.C. **Effluent Limitations and Monitoring Requirements – Additional Instructions:** *Updates Part I.D. of the previous permit with minor wording changes.* *QL for BOD₅ changed from 5 mg/L to 2 mg/L. QLs for COD and total phenols were added and QLs for Ammonia-N and Oil & Grease were removed.* Authorized by VPDES Permit Regulation, 9VAC25-31-190 J.4 and 220.I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.
- Part I.D. **Whole Effluent Toxicity (WET) Requirements:** *Updates Part I.E. of the previous permit with minor wording changes.* VPDES Permit Regulation, 9VAC25-31-210 and 220.I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.
- Part I.E.1 **95% Capacity Reopener:** *Updates Part I.F.1 of the previous permit with minor wording changes.* Required by VPDES Permit Regulation 9VAC25-31-200.B.4 for certain permits. Included for this facility to ensure that adequate treatment capacity will continue to be provided as influent flows and/or loadings increase.
- Part I.E.2 **Materials Handling/Storage:** *Updates Part I.F.2 of the previous permit with minor wording changes.* 9VAC25-31-50.A prohibits the discharge of any waste into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

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- Part I.E.3 **O&M Manual Requirement:** *Updates Part I.F.3 of the previous permit with changes to what is required to be included in the O&M Manual.* Code of Virginia Section 62.1-44.16, VPDES Permit Regulation 9VAC25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an O&M manual ensures this.
- Part I.E.4 **CTC/CTO Requirement:** *Identical to Part I.F.4 of the previous permit.* Required by Code of Virginia 62.1-44.19, Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.
- Part I.E.5 **Concept Engineering Report (CER) Requirement:** *Updates Part I.F.5. of the previous permit with minor wording changes.* Section 62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A CER means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations.
- Part I.E.6 **SMP Requirement:** *Identical to Part I.F.6 of the previous permit.* VPDES Permit Regulation 9VAC25-31-100.Q, 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9VAC25-32-10 *et seq.*)
- Part I.E.7 **Licensed Operator Requirement:** *Updates Part I.F.7 of the previous permit with minor wording changes.* The VPDES Permit Regulation 9VAC25-31-200 C, the Code of Virginia Section 54.1-2300 *et seq.*, and Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18 VAC 160-20-10 *et seq.*), requires licensure of operators. The licensed operator requirements apply to wastewater treatment works based on the maximum 30-day average flow and treatment type. A class II license is indicated for this facility.
- Part I.E.8 **Reliability Class (Outfall 104):** *Identical to Part I.F.8 of the previous permit.* Required by Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790 for all sewage treatment facilities.
- Part I.E.9 **Water Quality Criteria Monitoring:** *Updates Part I.F.9 of the previous permit with minor wording changes.* State Water Control Law Section 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit.
- Part I.E.10 **Treatment Works Closure Plan.** *Updates Part I.F.1 of the previous permit with minor wording changes.* This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure industrial sites and treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law.

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- Part I.E.11 **Reopeners:**
a. *Identical to Part I.F.11.a. of the previous permit:* Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.
b. *Identical to Part I.F.11.b. of the previous permit:* 9VAC25-40-70.A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.
c. *Updates Part I.F.11.c. of the previous permit with minor wording changes.:* 9VAC25-31-390.A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
d. *Identical to Part I.F.11.d. of the previous permit:* Required by the VPDES Permit Regulation, 9VAC25-31-220.C, for all permits issued to treatment works treating domestic sewage.
- Part I.E.12 **Notification Levels:** *Identical to Part I.F.12 of the previous permit.* Required by the VPDES Permit Regulation 9VAC25-31-200.A for all manufacturing, commercial, mining, and silvicultural dischargers.
- Part I.E.13 **Nutrient Monitoring Requirements for Discharges of Industrial Stormwater:** *New Requirement.* Monitoring requirements for nutrients apply for Outfall 007 as this outfall discharges industrial stormwater. Requirements are in conformance with GM 14-2011.
- Part I.E.14 **Discharges through a regulated MS4 to waters subject to the Chesapeake Bay TMDL:** *New requirement.* Monitoring requirements for nutrients apply for Outfall 007 as this outfall discharges industrial stormwater. Requirements are in conformance with GM 14-2011.
- Part I.E.15 **Expansion of facilities that discharge to waters subject to the Chesapeake Bay TMDL:** *New requirement.* Monitoring requirements for nutrients apply for Outfall 007 as this outfall discharges industrial stormwater. Requirements are in conformance with GM 14-2011.
- Part I.F. **General Storm Water Special Conditions:** *Combines and updates Part I.G and Part I.H of the previous permit with minor wording changes.* VPDES Permit Regulation 9VAC25-31-10 defines discharges of storm water from industrial activity in 9 industrial categories. 9VAC25-31-120 requires a permit for these discharges. The Storm Water Pollution Prevention Plan requirements of the permit are derived from the VPDES general permit for discharges of storm water associated with industrial activity, 9VAC25-151-10 et seq. VPDES Permit Regulation, 9VAC25-31-220.K, requires use of best management practices where applicable to control or abate the discharge of pollutants when numeric effluent limits are infeasible or the practices are necessary to achieve effluent limit or to carry out the purpose and intent of the Clean Water Act and State Water Control Law.
- Part I.G. **Sector-Specific Storm Water Pollution Prevention Plan Requirements:** *Updates Part I.I. and Part I.J. of the previous permit with minor wording changes.*
- Part II **Conditions Applicable to All VPDES permits:** *Updates Part II of the previous permit.* VPDES Permit Regulation 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.
- Deletions:
- Part I.A.6. Internal Outfall 101 was removed as the nature of the wastewater no longer requires internal monitoring.
- Part I.B. The special condition for Interim Limits and Schedule of Compliance for bacteria was removed as it has been met.